General Psychology

Dr. Vatsyayan

KEDAR NATH RAM NATH, MEERUT

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GENERAL PSYCHOLOGY

(IN QUESTIONS AND ANSWERS)

Second Revised Edition

BY

Dr. VATSYAYAN

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PREFACE

This book solves degree examination questions of Bombay, Calcutta, Madras, Punjab, Karnatak, Mysore, Poona, Gujrat Baroda, Jodhpur, Ravishankar, Saugar, Nagpur, Osmania, Bihar, Muzaffarpur, Vikram, Gorakhpur, Rajasthan, Allahabad, Agra, Banaras and other Indian Universities. The reader will find the following characteristics in this book:—

*Subject matter of 1st division standard on every topic.

*Simple, plain and lucid language.

*Quotations from reput[illegible] authors and scholars.

*Points in black to facilitate revisions.

*Every point in a separate paragraph.

*Charts and tables to elucidate issues.

*Simplest explanation of issues with examples from Indian life.

*Integral and balanced approach in the treatment of the subject.

*Covering the syllabi of a[illegible] the Indian Universities and solving latest questions of the above mentioned universities.

However, suggestions for improvements will be gratefully acknowledged.

—*Vatsyayan*

CONTENTS

Page

Chapter 1. GENERAL PRINCIPLES

1 What, in your opinion, is the best definition of psychology ? On what grounds do you commend it ?
Attempt a suitable definition of psychology considered as a science.
Discuss the different definitions of psychology and indicate your own preference.
Psychology is the science of behaviour. Discuss.
Discuss the suitability of the following as the subject matter of psychological study :
Mind, Consciousness and Behaviour.
Define Psychology and bring out its nature and scope. 1
2 "Psychology is the science of the mental activities of the organisms." Explain and examine this statement. 5
3 Explain the nature and stand point of psychology as a science. 6
4 Describe the important branches of psychology.
Discuss the scope of psychology.
What according to you, is the subject matter of psychology ? What precisely is the business of Social Psychology as distinguished from Psychology in general ? 6
5 Define the meaning and scope of psychology.
Define psychology. Indicate its various branches giving in detail the subject matter of each branch. 13
6 Discuss the aims and uses of Psychology considered as a natural science of behaviour.
Discuss the practical value of Psychology for human life.
What do you think psychology to be ? How does its knowledge help you ? 13
7 Determine the scope of Psychology and indicate its practical utility. 18

8 Indicate some fields where practical applications are now made of Psychology. Give an idea of how it is applied in any one of these fields. 18

9 Explain and examine the following definition of psychology. "Psychology is the science of the activities of the individual." 18

10 Discuss the extent to which psychology is an exact science.

Discuss the nature of psychology as a science and point out the characteristics of its experimental method. 20

11 Explain the nature, scope and use of Psychology as a science of behaviour. 24

Chapter 2. METHODS OF PSYCHOLOGY

12 Write short note on—Introspection.

What is Introspection ? What are its difficulties ? How far can you overcome them ?

Explain clearly the exact nature of Introspection as a method of Psychology indicating its limitations and value.

What is Introspection ? Can Psychology do without the use of Introspection as a method ? Discuss.

What is Introspection ? Discuss its value in the analysis of mental processes. 25

13 Describe a psychological experiment. What are the advantages and disadvantages of the experimental method in psychology ?

What is the nature of experimental method ? How does psychology employ this method ?

Explain with examples the Experimental Method in psychology and discuss its value.

Discuss the limitations of the method of experiment in psychology.

What is a psychological experiment ? Illustrate through examples the salient features of such an experiment.

Examine the advantages and limitations of the experimental method in psychology. 30

14 What is the case history method in psychology ? What is its special value ? What are its defects and limitations ? 35

15 Explain the principal methods of study used in psychology. What are the problems of psychology ? Mention some of the important methods which are used in their study.
Define psychology. What are the various methods used in it.
16 Explain clearly the subject matter and the method of the science of psychology. Is Psychology an exact science ?
17 "Introspection and objective observation supplement each other." Discuss fully. 39
18 Describe the nature of the method of objective observation in psychology. To what errors is it liable.
Compare the method of observation with the experimental method and point out the limitations of the method of observation. 40
19 Explain the nature of the developmental method and bring out its importance in psychology. 44
20 Describe fully with an example the experimental method of psychology. Can this method afford to ignore introspective data ? 45

Chapter 3.

RELATION WITH OTHER BRANCHES OF KNOWLEDGE

21 How is Psychology related to Physiology ? Discuss. Describe in brief the physiological basis of psychology. 46
22 "Psychology studies the individual's activities in relation to his environment." Discuss this statement and explain the relation of Physiology, Psychology and Sociology. 48
23 Give an account of the essential features of psychology as a science of human behaviour and discuss the relation of psychology with biology.
Define psychology. How it is related to Biology and Sociology ? 50
24 Define psychology in suitable words and trace its relation to philosophy. 51
25 What is psychology ? How it is related to Logic and Ethics. 52

Chapter 4. LEVELS OF CONSCIOUSNESS

26 Write brief explanatory note on the following :—
The unconscious.
What is meant by the unconscious in psychology and how is it related to consciousness ? How do we know about the existence of the unconscious ?
What is the difference between conscious and unconscious mind ? In what way do they influence each other ? 55

27 Give a complete picture of the mind as a conscious unconscious dynamic whole. 60

28 How would you distinguish between the conscious and the unconscious ? Point out the mutual relationship between the Id, Ego and Super-ego.
What is the difference between conscious and unconscious mind ? In what way do they influence each other ? (1

29 What are the different aspects of consciousness ? Discuss their relations to one another.
Point out clearly the different phases of mental life. 64

30 Discribe the process of dreaming and examine the theory of Freud that dreams are wish-fulfilment.

31 Explain how night dreams differ from day dreams. Discuss the various theories about the interpretation of dreams.
Describe Freud's interpretation of dream. What are the other theories of dream interpretation ?
Write note on Dream. 68

32 Write short note on Day Dreaming.
Discuss the nature of day dreaming. What are the uses and abuses of day dreaming ? 75

Chapter [illegible] THE NERVOUS SYSTEM

33 Describe in broad outline the nervous system considered as a stimulus—response mechanism.
Describe the brain and its functions.
Give a brief account of the function of the central nervous system.

Describe the stimulus response mechanism. How does it help in explaining human behaviour ? 77

34 Write a short note on—Autonomous Nervous system.
Write short note on Sympathetic nervous system. 80

35 Describe briefly the function of the endocrine glands. 83

36 What is the difference structurally and functionally between white and grey matter of the nervous system ? Explain with the help of necessary diagrams. 85

37 Describe the distinctive functions of the Central Nervous system.
Describe the structure and reflective functions of the different parts of the Central Nervous system.
Give a brief account of the functions of the central nervous system.
Give a brief but complete description of cerebro-spinal nervous system.
Write short note on—(a) Cerebellum (b) Medula oblongata. 87

38 What do you understand by reflex action ? Distinguish it from voluntary action.
Write a short note on—Reflex Actions. 92

39 What do you understand by cerebral localisation ? Explain.
Explain localisation of function in the Brain Cortex.
Write note on—Localisation. 95

40 What is the importance of the study of Nervous system for Psychology ? Illustrate answer.
In what way is the study of the nervous system helpful in understanding Psychology ? Give a brief account of the structure and function of the brain. 100

41 Describe briefly the nervous system and compare it with the telephone system of your city. 100

42 Describe a reflex arc. How does reflex action differ from motor behaviour ? 102

43 What are the characteristics of reflex action ? Is the concept of reflex action sufficient to account for all behaviour ?
What is reflex action ? Is the concept of reflex action adequate to account for all human behaviour ?

44 What are characteristics of 'behaviour' ? Can behaviour be reduced to reflexes ? 103
What are the marks of purposive behaviour ? Explain and criticise the Reflexist interpretation of animal behaviour. 103

Chapter 6. PSYCHOLOGY OF COGNITION : SENSATIONS AND SENSE ORGANS

45 What is the nature of sensation ? What are its attributes ?
What is sensation ? Illustrate its types, corresponding receptor organs and stimulus objects. 106
46 What are the main kinds of sensation ?
Write short note on Organic sensations. Define sensation.
Explain briefly the different kinds of sensation.
What are the main types of sensation ? Give an acccount of any two of them. 108
47 Describe the structure of the eye and explain how colour vision arises.
Indicate with the help of a diagram the following part of the eye :
Cornea, pupil, lens, ciliary muscle, fovea and optic nerve. State exactly the function of each of these parts. 111
48 Make a diagram showing the tympanic membrane, the ossicles, the semi-circular canals and the cochlea in the apparatus of the ear and name the particular functions of each of these parts. 114
Write a short note on the Weber-Fechner-Law.
Explain the Weber-Fechner-Law. What are its limitations ?
What are sensations ? Give a critical account of the Weber-Fechner-Law. 115
49 Write a short note on—Colour Blindness. 117

Chapter 7. PSYCHOLOGY OF COGNITION : PERCEPTION

50 Distinguish between Sensation and Perception giving a full analysis of the later.

Explain fully the relation of Sensation to Perception. Can there be a mere sensation ?

What is perception ? Give a brief analysis of perception. Clearly bring out the nature of perception and state the factors involved in it.

"Perception is the process of knowing objects and objective facts on the basis of stimuli from the objects which affect the senses." Discuss.

"Pure sensation is an ideal limit." Explain this statement so as to bring out clearly the distinctions between sensation and perception.

What is perception ? Explain giving examples the errors of perception. 119

51 Define Perception and analyse the factors involved in it. What are the various factors that influence perception ? Explain with illustrations. 121

52 Explain and illustrate the different laws of Perceptual grouping.

What is meant by organization in perception ? What are the factors influencing it ?

What is perception ? Discuss the role of Figure and Ground in determining perception.

Distinguish between sensation and perception. What are the laws of sensory organization ?

How do you distinguish between figure and ground in perception ? Illustrate the figural factors in perception.

What is the chief contribution of Gestalt psychology ? Illustrate your answer with reference to the psychology of perception. 122

53 Explain with illustrations :

1. Figure and Ground Phenomenon.
2. Mental Set in Perception.
3. Principle of Closure in Perception. 128

54 What are Illusions ? Explain with the help of examples the illusions caused by various factors.

Write a short note on—Illusion.

Distinguish between an illusion and a hallucination. 128

55 Write a short note on Hallucination. 132

56 Distinguish between "Illusion" and "Hallucination." What is an optical illusion ? Give examples of optical illusion. 132

57 What are the characteristics of a perception ? Explain by an example as to what is meant by reduced cues and ambiguous signs. 133

58 How do we see the relative distance of objects from us ? Indicate the problem involved in seeing the third dimension. What are the different signs which suggest the relative distance of objects from us. 135

59 Describe the chief elements that enter into the visual perception of space. 136

60 What is Perception ? How do we perceive time ? Explain. 138

Chapter 8. MOTIVATION AND INSTINCTS

61 What are motives ? Explain their importance and classify them giving suitable illustrations.
What is meant by motivation ? Explain its significance in learning by means of examples. 139

62 What are the major classes of human Motives ? Explain with illustration.
Define motive and mention its varieties. Indicate some consequences resulting from the conflict of motives.
What are motives ? Explain the distribution of motives into organic needs, emergency motives and objective motives.
What are our social motives ? Do you think they are mere extensions of our biological needs ?
What are organic motives ? Sketch briefly the working of hunger and sex in human beings. 141

63 Write a short note on—Physiological drives. 156

64 Examine critically McDougall's theory of instincts.
Write a short note on—Instincts.
Examine the relation between Instinct and Emotion.
What is instinct ? Can we speak of human instincts ? If so, in what sense ? 156

65 What is meant by instinct ? Bring out its relation to Reflex Action.

Discuss the nature of instinctive activity; bringing out its difference from reflex action. 161
66 What is instinct ? Can it be modified ? Discuss.
What is the nature of instinct ? Does instinctive behaviour admit of learning ? 162
67 Write a short note on—Ideo-Motor Action. 164
68 What are the primary needs of man ? Do they provide the basis for all his social motives ? 164
69 What is instinct ? Is there any difference in the working of instinct in human life as compared with the life of animals ?
What is instinct ? How is it related to Intelligence ? 166

Chapter 9. VOLUNTARY DECISION

70 Distinguish between impulsive and volitional act and analyse the major stages in the process of volition.
Describe fully the process of Voluntary Decision.
Explain fully the nature of Voluntary Decision.
Give a detailed analysis of Voluntary Decision.
Explain the difference between voluntary and involuntary action. What is the place of self-control in these actions ?
Analyse the process of voluntary action, and bring out the part played in it by the self as agent. 168
71 Give a psychological analysis of desire. 171
72 Write a short note on Volition. 172
73 Character is the system of directed conative tendencies. 173
74 Write short note on— 174
1. Concept of Self.
2. Conflict of Motives. 174

Chapter 10. FEELING AND EMOTION

75 Describe the nature of Emotion and consider how far it can be indentified with visceral sensation.
What is Emotion. Examine the importance of physiological factors in emotion.
Sketch the organic states with characteristic physiological change associated with the excited emotions of fear and anger.

"Emotion is a reaction of total organism." Discuss. 177

76 Clearly distinguish between Emotion and Feelings.
What is the difference between Feeling and Emotion ?
Explain the part played by physiological factors in emotion ?
Give an account of bodily changes involved in emotion. Illustrate your answer with the help of concrete examples. 178

77 Write a short note on—Sympathy. 184

78 Discuss the function of emotion in experience and behaviour. Give examples of some simple and complex emotional conditions. 186

79 Discuss the Jame Lange theory of emotions.
Discuss the physiological theory of emotion.
Examine James view that "Emotion is a consequence and not a cause of bodily expressions."
State James-Lange theory of emotion. Examine the evidence produced in its favour and give your judgement upon the theory. 189

80 How would you distinguish between Feelings and Emotions ? Give the different theories of emotion. 193

81 Write a short note on Sentiment and attitudes. 195

82 Trace the process of development of sentiment, illustrating your answer by examples,
Write a short note on—Sentiment.
What is the nature of Emotion ? How are emotions related to sentiments.
How are sentiments formed ? What is their utility for man. In what way are they different from Instincts and emotions ? 197

83 Show how emotions and sentiment follow and determine each other. How does a complex differ from a sentiment ? Illustrate your answer.

84 Explain McDougall's views on sentiments. How are sentiments organised into character ?
Explain the nature of sentiments and bring out their significance in the formation of character.
What part do master sentiment play in the organisation of character ? 198

Chapter 11. MEMORY AND ASSOCIATION

85 What is memory ? Analyse the factors in memory and briefly indicate their nature.

What is memory ? Give an account of various processes involved in memory.

(a) Bring out the main factors of memory.

(b) Can memory be improved ? Discuss.

Describe in detail the different aspects of memorisation.

(a) Describe the processes of retention and recall with illustrations.

(b) How do you measure retention ? 200

86 Distinguish between Recall and Retention. What are the conditions of Recall ? 204

87 Describe the conditions favourable to memorisation. What does good memory consist in ? Name and Illustrate some factors that help retention. 205

88 Discuss how efficient remembering depends on—

(i) The age of the learner,
(ii) The kind of learning material,
(iii) The amount of practice,
(iv) Emotional Poise. 210

89 What is meant by association of Ideas ? Describe their various forms and their interrelation.

What are the laws of association ? How are they related to one another ?

Write a short note on Laws of Association. 210

90 Describe the methods of affecting economy in memorising.

Briefly state the experimental results regarding the economical methods of memorising.

How far is it possible to effect economy in memorising ? Explain.

What are the factors that help as a part of the process of remembering ? Illustrate your answer giving two experiments. 213

What are the causes of forgetting ? Briefly discuss the theory of retroactive inhibition .

What is Retention ? Explain some theories of forgetting.
What are the conditions of Remembering and forgetting ?
Write a short note on—Forgetting. 217
91 Is retention same as memory ? What are the most effeloive methods of memorising ? 221
92 Distinguish between recall and recognition. What are the factors which (a) influence forgetting and (b) determine recall ?
93 What are the various stages in the process of memorisation ? How can memory be improved ? 222

Chapter 12. IMAGINATION

94 What is imagination ? Explain different types of imagination with examples.
Describe the main forms of Imagination with special reference to dreams.
Define imagination. What is its role in invention and aesthetic appreciation ?
Write in detail the nature and points of imagination. 223
95 Distinguish between the exercise of Imagination and thinking. Is language essential to thinking ? Discuss. 227
96 What are the different types of imagery.
Write a note on types of Imagery.
What is imagery ? Describe the different types of imagery and determine their place in thought.
Describe the types and functions of images. 228
97 How would you distinguish between memory and imagination ? What are the various kinds of imagination ?
Distinguish imagination from memory and describe the various types of imagination. 230
98 Write a short notes on : (a) Phantasy (b) Delusion. 231
99 Write a short note on : After Images. 232
100 Bring out the difference between belief and imagination and explain the conditions of belief. 232

Chapter 13. FATIGUE

101 What do you understand by Fatigue ? State and describe the various kinds of fatigue.

Write a short note on : Fatigue. 235

Chapter 14. THINKING

102 What is thinking ? Analyse the process of thinking in solving a problem with the help of a suitable example.

Write a short note on—Nature of thinking.

Distinguish between a 'guiding idea and a hypothesis.'

Bring out clearly the salient features of problem solving behaviour.

Analyse the process of thinking. Explain the relation between thought and language. 239

103 Write a short note on : Spearman's Laws. 243

104 What is concept ? Give some experiments on concept formation.

How is concept formed ? Discuss the role of conception in thinking.

Write a short note on Concept formation.

What are concepts ? Explain through instances, the process of concept formation. 245

105 Describe favourable and unfavourable elements in thinking. 247

106 Write a short note on—Autistic Thinking. 250

Write a short note on—Creative Thinking. 251

Chapter 15. ATTENTION

107 What is attention ? Discuss the conditions and effects of attention.

"Attention involves both sensory and motor aspects." Explain what are the conditions of attention ?

Explain with illustrations the determinants of attention.

Explain fully the nature of attention. What are the conditions of attention ?

Explain the nature and conditions of attention.

Explain fully the nature, conditions and uses of attention.

State and illustrate the factors which attract attention. Is it possible to attend more than one thing at a time ? 253

108 Describe the nature of attention and also its principal varieties.

Mention the important types of attention. Explain the various factors which determine attention.

Give a brief account of different types of attention, bringing out the main characteristics of the process.

What is meant by voluntary or involuntary attention ? Is their distinction quite sharp ? Illustrate your answer.

Distinguish between voluntary and involuntary attention. Can attention be divided between two distinct tasks at the same moment ? 260

109 Explain fully what is distraction and how you can overcome it.
Write a short note on—Distraction.

110 What is the relation between attention and perception ? Explain fluctuation of attention. 263

111 Can attention be indentified with interest ?
Fully consider the nature and conditions of attention. How are attention and interest related ?

How does interest influence attention ?
Explain the relation between attention and interest. 264

Chapter 16. LEARNING AND HABIT

112 What is learning ? Discuss the relation of motivation to learning. 267

113 Write a short note on—Learning and Maturation. 269

114 Write a short note on—Thorndike's Laws.
What are the laws of learning ? Discuss fully the law of effect.
Write short note on Law of Effect. 270

115 What do you understand by "Learning by Insight" ? How does it differ from learning by trial and error ?

Explain the nature of Insight as a method of learning.

What are the signs of the presence of Insight ? In what respect is insight superior to other methods of learning ?

Mention the chief forms of learning. In what respects is insight superior to other methods of learning ?

Describe the experiments of Kohler on animal learning and explain his theory of learning by insight. 278

116 Distinguish between 'learning by trial and error' and 'learning by insight.' Illustrate your answer with the help of examples. 280

Point out the different conditions favourable for various types of learning. 280

Write short note on—whole versus part learning. 282

117 Write a short note on—Transfer of Training. 284

118 Write a short note on Habits. 287

119 Differentiate between human and animal learning. Support your answer with examples.

What are the main points of difference between animal and human mind ? Compare the process of learning in man and in higher animals. 290

120 What are the chief methods of learning ? Which of these methods are influenced most by motivation ? 291

121 Discuss briefly various theories of learning. 292

122 Define learning. What are the principal forms and laws of learning ? 293

123 What is meant by conditioned response learning ? Bring out its important features.

Write short note on conditioned reflex.

Examine critically the conditioned reflex theory of learning.

Describe a conditioned reflex.

What do you understand by conditioned reflex ? Can all learning be explained in terms of conditioned reflex ? 295

124 Write short note on : Learning by trial and error.

Describe the nature of trial and error learning and bring out its main features. 298

125 Write short note on Learning Curve.
Write short note on—Physiological limit.
Write short note on—Plateau of learning.

Chapter 17. INTELLIGENCE AND INTELLIGENCE TESTS

126 What is meant by intelligence in psychology ? Is it a single ability or a sum of abilities ? Discuss.
What do you understand by intelligence ? Give a brief account of the test which have been derived to measure intelligence. How far are these tests reliable ?
What is the nature of intelligence ? How is it measured ?
Write a short note on—Nature of intelligence. 303

127 What are the usual contents of an intelligence test ? Describe any test of intelligence that you have used.
Write a short account of the development of intelligence tests. Describe fully any intelligence test that you know.
Explain the (a) Types (b) standardization and (c) Administration of Intelligence tests. 305

128 Write short notes on :
(a) Tests of Special Abilities, (b) Tests of Interests.
Define ability. Explain how abilities are measured ? 315

129 Write a short note on—I. Q.
Describe how intelligence is measured and individuals are qualified according to their I. Q. ?
How is I. Q. determined ? Do you think it remains constant ? Give reasons for your answer.
Define I. Q. How is it determined ? Indicate its importance in educational guidance. 320

130 Show the relationship, if any, between the intelligence of children and the occupation of their father. Give reasons for such a relationship. 322

Chapter 18. HEREDITY AND ENVIRONMENT

131 Examine the relative importance of Heredity and Environment in human behaviour. 324

132 Does heredity have the some significance for physical appearance, intelligence and personality ? Give reasons for your opinion.

Explain the comparative importance of Heredity and Environment in causing individual difference in intelligence.

Show the influence of heredity and environment on the intellectual and physiological development. 326

133 Sketch with suitable illustrations the interaction of the individual and the environment.

Discuss the interrelation between man and his environment. 330

134 Write a short note on—Heredity. 333

Chapter 19. PERSONALITY

135 What is meant by personality ? What are the factors which determine it ?

Define personality. What are the various conditions which determine personality.

Give a brief exposition of general factors in personality.

Write a short note on personality.

Write a short note on factors of personality.

Discuss the social and physical factors that contribute to the development of human personality. 333

136 Bring out the contribution of social factors to the development of personality.

Explain the role of family and school situations in the development of personality. 339

137 Discuss fully the different stages in the development of personality. 342

138 Write a short note on Integration of personality. 347

139 Write a short note on—Personality types.

What do you understand by Personality ? What are its different kinds ? Explain. 349

139 What do you understand by measurement of personality ? Describe in brief the important methods of personality assessment.

Explain briefly the various methods by which personality can be studied. What are the limitations of the questionnaire method ?

What is a personality trait? Describe the various methods of measuring personality ? 356

140 Give a complete and clear idea of personality. How would you distinguish between normal and abnormal personalities. 361

141 Write a short note on Conflict. 362

142 Write a short note on Multiple Personality. 363

143 Write a short note on Disintegration of personality. 364

144 Write a short note on Feeblemindedness. 365

145 What is meant by disintegration of personality ? How can it be detected and cured ? 367

146 Write short notes on— (a) Agnosia. (b) Empathy. (c) Sublimation.

Write short note on—Empathy. 369

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2326

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GENERAL PRINCIPLES

[Definition, Nature, Problem, Data, Branches, Aim and Value of Psychology]

_Q. 1._ What, in your opinion, is the best definition of Psychology ? On what grounds do you commend it ? (*Punjab 1964*)

Attempt a suitable definition of Psychology considered as a science (*Punjab 1953, 1954, 1957; Nagpur 1955; Jodhpur 1964*)

Discuss the different definitions of Psychology and indicate your own preference. (*Calcutta 1955*)

Psychology is the science of behaviour. Discuss. (*Bombay 1964*)

Discuss the suitability of the following as the subject matter of Psychological study :

Mind, conciousness and Behaviour. (*Punjab 1954*)

Define Psychology and bring out its nature and scope. (*Karnatak 1965*)

Before arriving at the present definition of Psychology it will be relevant to discuss its older definitions. Psychology has been successively defined as science of soul, mind, consciousess and finally behaviour.

1. Science of the soul

It was in the year 1590 that Rudolf Goeckle used the word psychology. This word is derived from the combination of greek words 'Psyche' and 'logos', the former meaning, 'soul' and the latter, 'discursive knowledge'. Thus, literally, psychology means the 'science of the soul'.

Aristotle gave a very important place to soul in human life. Life has no meaning without soul. But Aristotle could not successfully explain the relation of soul to body. The problem persisted presenting itself as the main problem of the relation between body and soul. This problem could not be successfully solved by philosophers as it was based on false dualism and involved a separate study of physical and spiritual phenomena. Later on the

Date ....

spiritual aspect was altogether left out of account and in view of its mystical characteristics, causing obstacle in the comprehension of the concrete facts of life, the word 'soul' was substituted by a more comprehensive word 'mind'.

2. Science of the Mind

Some ancient Greek philosophers defined psychology as the Science of Mind and according to them it was held as a branch of mental philosophy.

This definition of psychology, as the science of mind, has been rejected on the following grounds :—

(1) Modern psychology does not admit the existence of mind. Mind has been substituted by mental processes or modes.

(2) By merely calling it a science, one cannot make it clear whether psychology is a positive or a normative science.

(3) Even those who use the word mind are not unanimous about its nature.

(4) This definition does not include the overt behaviour of man and animal, which forms a major subject of study in the present day psychology.

3. Science of Consciousness

Psychology has also been defined as a science of consciousness. In '*Briefer Course in Psychology*', says, William James "The definition of psychology may be best given......as the description and explanation of states of consciousness as such." James Sully says, in his *Outlines of Psychology*, "I abide by the old conception that psychology is distinctly marked off from physical or natural sciences as...... having to do with the phenomena of the inner world and employing its own method or instrument, namely, instrospection." In the words of William Wundt, "Psychology has to investigate that which we call internal experience—*i. e.*, our own sensation and feeling, our thought and volition—in contra-distinction to the objects of external experience which form the subject matter of natural science." This definition of psychology as science of consciousness is now obsolete. It has been rejected on the following grounds :—

(1) Modern psychology does not believe in consciousness. Consciousness has been substituted by conscious processes.

(2) Even those thinkers who use the word conciousness, do not agree on its meaning. According to some, it is a substance while according to others it is a process or stream.

(3) The word consciousness does not include animal or human behaviour.

(4) Psychology also studies un-conscious and sub-conscious processes. Hence it cannot be called a science of consciousness alone.

(5) By merely calling it a science, it is not clear whether psychology is a positive or normative science.

4. Science of behaviour

Modern psychology has been defined as a science of behaviour. It was Watson, the founder of the school of behaviourism who popularised this definition in the psychological world. As he said in a polemical way, "It is possible to write a psychology, to define it............as the science of behaviour." But even before Waston many other psychologists defined Psychology as the science of behaviour. In his *Essentials of Psychology*. Pillsbury says, "Psychology may be most satisfactorily defined as the science of human behaviour." William Mcdougall says, in his famous little book on Psychology, "Psychology may be best and most comprehensively defined as the positive science of the conduct of living beings." This definition, comprehensive as it is, can be taken as the pioneer definition of psychology as the science of behaviour. But it is not sufficient to define psychology merely as science of behaviour. This definition has the following two limitations :

(1) By merely calling it a science, we cannot make it clear whether psychology is a positive or normative science.

(2) This definition takes behaviour in a very narrow sense. Behaviour as Watson saw it was merely stimulus-response. Mc dougall's definition of psychology is one of the most suitable but it is too wide. Behaviour, as the modern psychology takes it, includes the external behaviour as well as the inner experiences of the human beings, and of the animals of high species.

Suitable definition of Psychology

Even the contemporary psychologists do not agree on the definition of psychology. According to Edwin. G. Boring, "Psychology is the study of human nature." This definition neither tells what type of science psychology is, nor does it find any place for animal behaviour in psychology. Of the most acceptable definitions in the contemporary psychology one finds those given by R. S. Woodworth and N. L. Munn. According to Woodworth, "Psychology is the scientific study of the activities of the individual in relation to his environment." According to N. L. Munn, "Psychology today concerns itself with the scientific investigation of behaviour, including from the stand point of behaviour, much of what earlier psychologists dealt with as experience." Both these definitions can be accepted as satisfactory, but the latter is better than the former in a certain sense.

Thus, *Psychology is a positive science of behaviour.* In this definition of psychology, the meaning of 'Positive Science', and 'Behaviour', is significant. An explanation of these will further clarify the present definition of psychology.

Psychology is a positive science

Psychology is a positive science because it studies facts. The psychological judgments are factual. Psychology as a positive science studies "What is." Thus it is not a normative science. It is not concerned with values, 'ought' or axiological judgments.

Psychology is a Science

Psychology is a science because it uses only the scientific methods. Modern psychology admits only those methods which are strictly scientific and which give us the knowledge that can be verified everywhere. Some thinkers are against this democratisation of psychology and yet psychology must insist on it if it has to find an honourable place among the sciences. It may be that much of the interesting part of the common man's psychology is found by pseudo-scientific methods and such knowledge may be very useful in life as well. But if philosophy and literature are useful in life, that is no reason why they should be substituted in place of science. Science has its own limitations. It can be serviceable only when it keeps those limitations. Psychology as a science should be strictly confined to the scientific methods of study. A note of caution is necessary at this stage since the data of psychology is widely different from that of physical sciences. Psychology deals with behaviour which is dynamic and complex. Hence, it cannot claim exactness and veracity equal to that of physical sciences. Thus psychology is a positive science, though within its own limitations.

Meaning of Behaviour

The word behaviour in the contemporary psychology is used with a very wide meaning. It includes the behaviour of men as well as of animals, normals as well as abnormals and children as well as adults. Behaviour does not imply merely the physical activity but it also includes internal processes. It has been well said by Cattell "...Psychology is what the psychologist is interested inquapsychologist."

Distinction in Experience and behaviour

Here the question arises as to what is the distinction between experience and behaviour. The main distinction between experience and behaviour is that while the former is private, the latter is general and while the former is subjective the latter objective. Modern psychology includes all types of experiences in internal behaviour. Thus behaviour is not only motor, but also cognitive and conative.

Conclusion

Modern psychology studies man from pre-natal stage upto old age, from the cradle to the grave. Thus in the ultimate analysis, psychology is the positive science of behaviour taking behaviour in the widest possible sense

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Q. 2. **"Psychology is the science of the mental activities of the organisms." Explain and examine this statement.**

(Karnatak 1965; Poona 1965; Gujrat 1964; Bombay 1958)

It has been said that "Psychology is the science of the mental activities of the organisms." In this definition of psychology there are three important points to be noted—(1) Psychology is a science. (2) Psychology is a science of mental activities. (3) Psychology is a science of the mental activities of the organisms. An analysis and classification of these three points will explain as well as examine this statement.

It has been rightly remarked that psychology is a science. Psychology uses scientific methods in its study. It is based upon generalisation drawn on the basis of factual data analysed and compared. In can be distinguished from mental philosophy on the basis of its methods. The conclusions of psychology are veridical. They can be verified at any time or place. The principles of human behaviour, as psychology explains them, are applicable to all human beings in given circumstances. But it is not sufficient to call psychology a science, since this does not clarify whether it is a positive or a normative science. Ethics is also a science. But psychology is a science in a very different sense. It is a positive science. It studies facts and not 'ought'. Its judgments are factual and not axiological.

Psychology is the science of 'mental activities' of the organism. Psychology studies mental activities, voluntary as well as involuntary, conscious as well as unconscious and subconscious. The term 'mental activities' includes mental behaviour as well as experience. But since psychology has left the word 'mind' it is not appropriate to call it a science of mental activities, whatever meaning may be given to the word, 'mental'. It is better to call it science of behaviour, the term which includes experience as well as behaviour.

It is rightly said that psychology studies mental activities of the 'organism'. The word 'organism' has been favoured by many psychologists as it implies a continuam physical as well as mental. It does away with the dualism of mind and body and includes both in a dynamic whole. It is certainly a better word than 'living being' and often even than 'individual' since 'living being' has too wide a connotation and the word individual does not adequately fit in with the animals whose behaviour psychology studies.

Thus in the ultimate analysis, the statement ' Psychology is the science of mental activities of the organisms," requires some modification to suit the present definition of psychology. It is better to put it thus : "Psychology is the positive science of the behaviour of the organisms."

* * *

Q. 3. **Explain the nature and stand point of psychology as a science.** *(Bombay 1956)*

See Q. No. 2 and 10.

Q. 4. **Describe the important branches of psychology.** (*Karnatak 1964*)

Discuss the scope of Psychology.

What according to you, is the subject matter of Psychology ? What precisely is the business of social Psychology as distinguished from Psychology in general ? (*Punjab 1955*)

The history of psychology has witnessed ever widening scope of its field. Psychology to-day does not only study the animal behaviour, but it also studies that of man in all the stages of his development. Not only does it study different types of behaviour, but it also compares them and finds out general principles useful in the understanding as well as the control of behaviour. In brief, where there is behaviour, one finds scope of psychology. A survey of the different contemporary branches of psychology will give a rough picture of its present scope. Roughly, the wide field of psychology can be divided into the field of theoretical studies as well as applied psychology.

Animal Psychology

Psychology studies animal behaviour. This branch of Psychology is known as animal psychology. Sometimes it is called comparative psychology, because it also compares human psychology and animal psychology. Animal psychology is useful for understanding the human behaviour as well, because there is no absolute gulf between the two. Many experiments which cannot be performed on men can be easily performed on animals, *e. g.* no one can study the effect of heredity as Weiss has studied in his experiments on mice. He cut down the tails of mice from generation to generation and concluded that this defect is not inherited even after several generations.

Social Psychology

Psychology studies the behaviour of the individual as well as his behaviour in social situations. The latter has been specialised by a branch of psychology known as Social Psychology which studies the behaviour of men as members of crowd, groups and audience etc. Hence its knowledge is nessary for the leaders, the generals and the reformers. The social psychologist studies social problems, finds out their laws and employs them for the solution of those problems. Thus social Psychology has been proved to be useful in almost every branch of social life.

Folk Psychology

A branch of psychology which studies superstition mythology, culture, music, art and religion in their psychological aspect, is known as folk-psychology. This branch is gradually becoming important in developed countries.

Child Psychology

Psychology studies man from birth to death. Thus child psychology is an important branch of psychology. It studies the child from the pre-natal stage upto the adolescent stage. It studies the development of the child, its behaviour, as well as various aspects of its personality. Thus, it is very useful for the educationists as well as for the parents. It discovers the secrets of the child's world and so gives us an insight to control it as well as to mould it according to accepted social values.

Beyond the scope of child psychology is the adolescent psychology. It studies the man from the age of 12 to 21 years. It

Adolescent Psychology

studies the physical, mental and social growth of the adolescent individuals. This stage is known as full of stresses and strains. It is a stage when man passes from childhood to adult stage. Hence the knowledge of its laws is very helpful for the guidance clinics as well as for that of the parents, teachers and all others who have to deal with the adolescent.

Psychology not only studies the various stages of the development of the individual, but it also analyses his different activities.

Analytical Psychology

This field is known as analytical psychology. In this branch of psychology the psychologist analyses the various complex processes into their components, finds out their genesis and the general laws regarding them. One of the branches of the analytical psychology is known as genetic psychology, which studies the species of men and animals from the psychological point of view.

While psychology studies the general principles which are universally applicable to the behaviour of mankind, it also studies the individual differences. This field is known as psychology of individual differences. An important branch of this field is the individual psychology which is mainly concerned with the psychological types. An excellent example is the classification of men into introverts, extroverts and ambiverts. This classification has been attempted by Jung. The psychology of individual differences studies how individuals differ in their personality, intelligence and other important traits. It studies the role of heredity and environment in creating individual differences.

Psychology of Individual Difference

Psychology not only studies the normal behaviour but also the abnormal. It studies different types of psychoses, neuroses and other abnormalities, finds out their causes and general principles and utilises them to cure these abnormalities. This branch of psychology is known as abnormal psychology.

Abnormal Psychology

An important branch of abnormal psychology which is very well known to the lay-man is psycho-analysis. The founder of this school, Sigmund Freud, has been very famous for his analysis of dreams, day dreams, various types of errors of pen, slips of tongue, forgetting, humour, art and religion etc. Psycho-analysis provides the most interesting literature in psychology, though it is not so

Psycho-Analysis

scientific and exact. One of the practical applications of abnormal psychology has been in the field of psychiatry.

Psychology of normal motivation

An important branch of abnormal psychology and psycho-analysis is known as psychology of normal motivation. It studies the conflicts, the frustrations and various types of complexes in infancy, childhood, adolescence and adult stage. It also finds out how these maladies can be removed and the man become a normal and adjusted person in society.

Physiological Psychology

Psychology is very close to physiology. It studies physiological processes from the psychological standpoint. This particular branch of psychology is known as physiological psychology. This includes the study of brain, spinal cord, the sense organss muscles and nerves etc. An important contribution of physiological psychology is the finding of relation between psychoses and neuroses.

Psycho-Physics

Psychology also studies the physical stimuli in quantitative terms. This field of psychology is known as psycho-physics. An important example of this field of study is the Weber—Fechner law, which studies the least noticeable difference in different stimuli.

Experimental Psychology

The most important method of contemporary psychology is the experimental method and we find it to-day a growing branch of psychology known as experimental psychology. This is one of the most valuable branches of psychology since it uses strictly scientific methods in its study. Experimental psychology studies external behaviour as well as the internal processes of the different stages of human development as well as of the animals. Only those phenomena fallo utside its field which cannot be studied in controlled situations. But the scope of experimental psychology is gradually widening with the invention of new tools and instruments for experiments.

Developmental Psychology

Psychology is dynamic. It studies man as a dynamic and developing being. Developmental psychology studies the various stages of the development of man, compares the developments of different individuals, finds out the cause of the differences and searches for general laws governing them. The study of the development process helps to find out ways to control and reform them.

The different branches of psychology hitherto described, are included in general psychology which does not go into the details of these processes, but studies them from a general standpoint. Thus general psychology includes the study of sensations, perceptions, motives, memory, imaginations, thinking, personality and all other normal human activities and mental process.

General Psychology

Psychology is not only a theoretical study but also helps in the solution of various problems concerning different aspects of human behaviour. This is known as applied psychology. Applied psychology to-day is however, divided into different special branches e. g., clinical psychology, educational psychology, legal psychology and industrial psychology etc. To have an idea of the scope of applied psychology, a brief survey of its important branches is useful. Following are some of the most important branches of applied psychology :

Applied Psychology

(1) Clinical Psychology : Clinical psychology is concerned with the cure of various types of abnormalities psychoses and neuroses etc. One of the pioneers in this field was Sigmund Freud. Since his time clinical psychology has progressed so much that now every next modern hospital in the Western countries has a clinical psychologist attached to it. An American survey in 1951 showed that clinical psychology is being used in about 43% of the American hospitals.

(2) Counselling and Vocational Guidance : One of the most valuable applications of psychology is in the field of vocational guidance. Psychology helps young men and women to choose their career according to their capacities and talents. Thus the universities, the colleges, the industrial centres and the employment exchanges profit by the counselling of the psychologist. This helps them in finding the right man for the right job. Besides giving guidance to the youth in vocations, the psychologist also guides the parents in tackling with the problems of the child, truancy, delinquency etc.

(3) Educational Psychology : Psychology has almost revolutionised our approach to education. Not only the teacher but also the taught and parents have profited by psychology. As

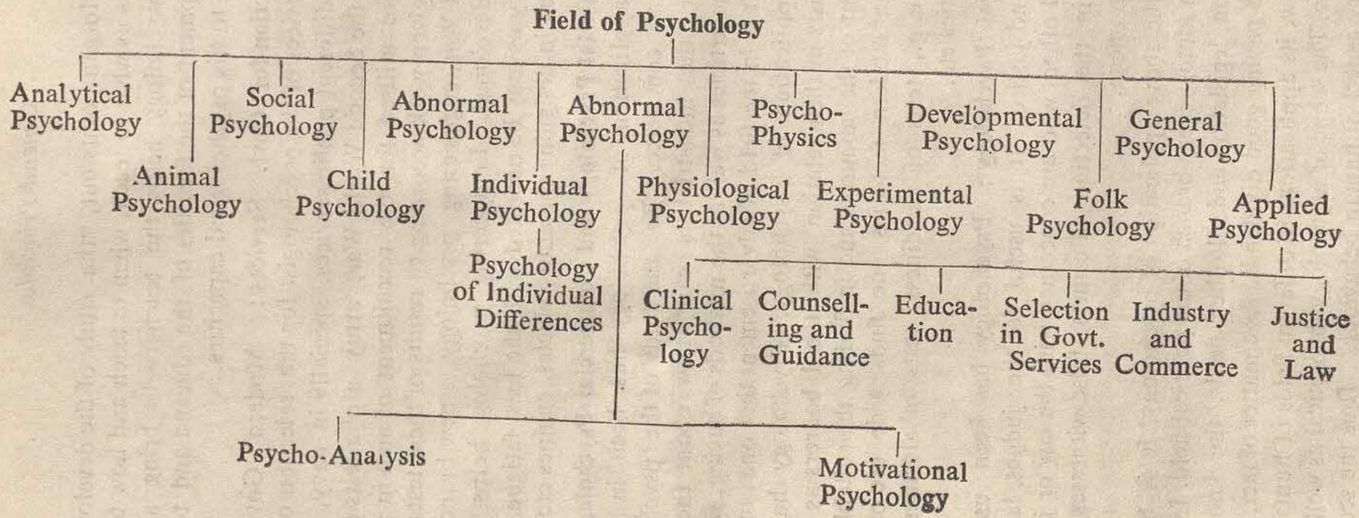
Clifford T. Morgan points out, "the study of the development of the child shows us what to teach, when to teach and how to teach". Educational psychology helps the teachers to bring about the utmost development of the faculties of the educand and to educate him according to his psychological capacities.

(4) Selection for Govt. Services: Modern Governments employ the services of the psychologist for the selection of suitable personnel for different public services, specially in navy, land and air force. In the Second World War, army alpha tests and army beta tests were utilised for the recruitment of men in army and soldiers were given work according to results of these tests. In the Second World War, engineering psychology, a new branch af psychology, was developed. Engineering psychology helps to devise such machinery as may be operated with the least fatigue. Thus it has helped men in designing the auto-vehicles, engines etc.

(5) Industrial Psychology and Commercial Psychology: The most useful application of psychology has been in the field of industry and commerce. By the study of the psychology of the consumer, the industrialists can know about the requisite qualities of the articles as well as the methods of buying, selling and advertising. It is in the field of advertisement that one notices most interesting application of psychology. Psychology has helped the industrialists in their relation with the labourers as well as in the recruitment of the labourers and in finding the suitable jobs for them In the modern factories one finds wide use of different types of tests *e. g.*, tests of steadiness, tests of alertness, tests of special qualities etc.

(6) Legal Psychology: Psychology has been used in the field of law and justice. It is useful for the judges, lawyers, witnesses and all others who are concerned with the law or justice. It has helped in the detection of crimes, false witnesses and other complex phenomena,

Besides the above application of psychology, it is being very much used in almost every branch of the political field. In elections, administration, legislation and all other fields, the knowledge of psychology is paying good dividends. As a matter of fact, as psychology will grow, its applications in different fields of human activities will also grow. The scope of psychology theoretical as well as applied includes every aspect of human behaviour. Thus the scope of psychology includes the study of conscious, un-conscious, sub-cons-


Field of Psychology
Analytical Psychology
Animal Psychology
Social Psychology
Child Psychology
Abnormal Psychology
Individual Psychology
Psychology of Individual Differences
Abnormal Psychology
Physiological Psychology
Psycho-Physics
Experimental Psychology
Developmental Psychology
Folk Psychology
General Psychology
Applied Psychology
Clinical Psycho-logy
Counsell-ing and Guidance
Educa-tion
Selection in Govt. Services
Industry and Commerce
Justice and Law
Psycho-Analysis
Motivational Psychology

2326

cious ; child, adolescent, adult; individual, mobs and audience ; leaders and followers ; labourers, students and men in all walks of life and different types of animal behaviour. In short, where there is behaviour there is field of psychology and this field is widening with the ever increasing knowledge of the psychologists.

The above mentioned scope of psychology shall be clear from the chart given on the next page.

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Q. 5. **Define the meaning and scope of psychology.** (*Calcutta 1957*)

Define psychology. Indicate its various branches giving in detail the subject matter of each branch. (*Calcutta 1956*)

See answer to the Q. 1 and 4.

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Q. 6. **Discuss the aims and uses of Psychology considered as a natural science of behaviour.** (*Poona 1960*)

Discuss the practical value of Psychology for human life. (*Calcutta 1957*)

What do you think psychology to be ? How does its knowledge help you ? (*Baroda 1964*)

Aim of Psychology

Psychology is the positive science of behaviour. It aims at the study of the facts of behaviour, their collection, classification and comparison and finds out general hypotheses based upon them. Thus the aim of psychology is the study of man's behaviour. Behaviour not only includes the overt activities, but also the inner processes. Thus psychology studies man's physical as well as mental activities.

Practical aim of Psychology

The aim of psychology is not only theoretical but also practical, though the theoretical and the practical works have been specialised by different branches of psychology in different fields. Thus, whereas the theoretical studies aim at finding out general laws regarding behaviour in their own field, the applied psychology aims at finding out the applications of these general laws. Thus psychology not only adds to our knowledge of human nature, but also makes life better. Not only does it aim at studying the personality of man, but it also aims at making it more balanced and adjusted.

Uses of Psychology

The uses of psychology are as wide as the field of its theoretical study. The study of psychology has proved very valuable in different fields of human activities. It has helped not only the individual, but also the institutions and associations to secure better adjustment to the situations. It has changed man's approach towards life and world. With the help of psychology, man to-day is able to control many phenomena, which were out of his hold previously. Psychology has helped man to understand himself. It has also helped him to understand his fellow-beings. The study of individual differences has made the individual more liberal, catholic and sobre in his behaviour to others. The study of different faculties, capacities and individual differences has helped him in finding out ways to use them with the utmost economy and efficiency. Thus psychology has helped in the planned economy of the modern nations. It has helped to solve problems of abnormals, sub-normals and insane.

Importance of Psychology

To have a view of the importance of psychology, a brief survey of its contribution in different fields of human life is helpful :

(1) Education : Psychology has made radical reforms in the field of education and revolutionised the syllabi and methods of education. The rule of cane has been substituted by psychological methods of persuation, encouragement and sympathy etc. Thus psychology has made education more natural, easy and useful. It has helped in the all round development of the educand and in sweet relations between the teacher and the taught.

(2) Crime Detection and Justice : Psychology has been very helpful in understanding the causes of crimes and also their cures. In modern states, steps have been taken to reform the criminals and to restore them to the society by removing the psychological causes of crimes. It is due to the influence of psychology that one finds new experiments in the field of criminology *e. g.,* probation, reformatories, Borstal schools, open air jails etc. Psychology has made it clear that the criminal alone is not responsible for his crimes, but much of the responsibility rests with his social situations as well. This has changed our attitude towards criminal. In the present theory of punishment, revenge has been substituted by reform. Separate arrangements have been made for the juvenile delinquents and juvenile delinquency has become a separate study. Psychology has helped the judges to distinguish criminals from non-criminals and to devise suitable punishment in various cases. Thus in the field of justice as well as of crime detection, the study of psychology is gradully proving more and more helpful.

(3) Cure of abnormal diseases : Psychology has proved very valuable in the field of medicine. According to present day psychology, every somatic disease is psychological, and hence requires not only physical but also psychological treatment. According to Brown, the author of the *Psycho dynamics of Abnormal Behaviour*, every man stands in need of periodical psychological check up. It has been found that 10% of the population in America at one time or another suffers from some s rious type of mental diseases. According to an estimate 15% of American college under-graduates, require the services of mental hygienist. Roughly, it can be said without exaggeration that almost every man needs the guidance of the clinical psychologist at some time or the other to keep his mental health. The psychologist has been instrumental in removing the chains of the insanes in asylums. The insanes today are no more treated as sinners, but sympathised with as those who have failed to accommodate themselves to their circumstances. Thus psychology has removed a lot of superstitions about the mental diseases and also helped in their cures.

(4) Industry and Trade : One of the most important factors in modern trade is advertisement and it is here that one finds widest application of psychology. Psychology studies the interests and reactions and so helps the industrialists to manufacture according to tastes. Psychology has made selling an art, if not a science. It has helped in the solution of the industrial disputes, the problems of strikes and lock-outs and all other problems between mill-owners and labourers.

(5) Recruitment in Services : Psychology has helped the employer in finding out suitable men for different kinds of work. It has helped the employee to secure work suited to his capacities and talents. It has helped in minimising the fatigue and using human capacities with utmost efficiency. It is due to the advice of the psychologist that one finds numerous schemes of labour welfare in modern countries.

(6) Human Relations : Psychology has been instrumental in bringing about adjustment in society. It has enabled men to understand each other and thus to improve their relations. Thus it has helped the sociologist and the social reformers to solve various problems in society.

(7) The solution of personal problems : Psychology has not only helped in the solution of the social problems, but also in that of the problems of the individual. Psychology makes man understand himself. Self understanding is the way to self-control. Self control helps one in future progress. Again, psychology has removed many superstitions regarding various phenomena in human psychology *e g.*, the meaning of dreams, day dreams and various abnormal phenomena etc. Psychology has helped man to form his character, to change his habits, to control his conduct and finally to adjust himself to new situations. It has warned him against dangerous activities and showed him the way to integral development of his personality.

(8) Help in the understanding of others : Just as psychology helps in the understanding of oneself, so it leads one to the understanding of others. It removes prejudices and eliminates hatred, because one can understand the causes of differences in behaviour. Thus psychology has been helpful in all types of primary and secondary groups, *e. g.*, family, clubs, schools, colleges, playgrounds etc. Psychology helps the parents to understand the child and the teacher to understand the taught. It helps in maintaining harmony between husband and wife, friends and lovers. In brief, psychology helps in the understanding of every type of human relation and solving its difficulties.

(9) Solution of political difficulties : Psychology has been widely applied in the political field. Social psychology has helped the leaders to understand the masses and control them. A Government which rules in defiance of the psychology of the public cannot stay long. Hence modern democratic Governments have a keen eye on different tendencies in the public. A democratic Government is formed by the peoples' representatives. These representatives are elected by the masses. Modern election depends upon the success of propaganda and the success of propaganda depends upon its psychological appeal. Thus modern politics very much depends upon psychology. Legislation, unless based upon psychological principles has scant chances of success.

Even the reforms should be devised according to the psychology of public. The administrator, without the knowledge of psychology, shall be a complete failure. History is a witness to the fact that the great rulers have always been masters of human psychology. Thus in every branch of Government and politics, the knowledge of psychology has been valuable.

(10) Uses in war time : In the times of war, the value of psychology becomes even more. The Cold Wars almost entirely depend upon psychological propaganda. Victory in war depends as much on self-confidence as on equipment. Psychology maintains the self-confidence in the army. It also helps in the recruitment of different men for different posts in navy, air and land forces. In the time of war the leaders are chosen according to their psychological insight and influence on the masses. In the time of an attack by the enemy the reactions of the public are observed and confidence is maintained with the help of psychological suggestions. The art of diplomacy very much depends on the knowledge of psychological facts.

(11) World Peace : Not only in the time of war, but also in the time of peace: psychology has its own importance. The problem of peace is in fact the problem of human adjustment. The World peace depends on the adjustment of men and women of different nationalities to one another. It is here that psychology plays a vital role. The knowledge of individual differences helps persons of different nationalities to understand one another. It helps to realise ideal fraternity among men. It helps in the understanding of aggressive tendencies, their control as well as in finding suitable outlets for them. The realisation of the cherished ideal of world-peace depends to a great extent on finding suitable-outlets for the various tendencies in men and women.

Thus in the ultimate analysis, one finds that psychology has its uses in every field of human relations. It helps us in understanding ourselves and others and control the harmful tendencies. It improves the individual behaviour, makes for social adjustments and removes conflicts and frustrations. Of all the different sciences which man has discovered so far, psychology is undoubtedly one of the most useful sciences for the realisation of human ideals and world-peace.

Q. 7. **Determine the scope of Psychology and indicate its practical utility.** (*Bombay 1958; Calcutta 1949*)

Ans. See answers to the question 4 and 6.

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Q. 8. **Indicate some fields where practical applications are now made of Psychology. Give an idea of how it is applied in any one of those fields.** (*Calcutta 1953*)

Ans. See answer to the Q. No. 4.

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Q. 9. **Explain and examine the following definition of psychology. "Psychology is the science of the activities of the individual."** (*Karnatak 1964; Punjab 1963; Delhi 1959*)

Ans. Psychology is the science of behaviour, though it is not the only science which studies human beings. Besides psychology, several other sciences study human beings from various perspectives. On one side there is physiology which studies the functioning of the physical organs, nervous system and cells etc. On the other side, there are social sciences which study man in society and groups. According to Prof. R. S. Woodworth, psychology lies in between these two types of sciences. It studies human beings, but concentrates on the individual. Thus according to Woodworth, "Psychology is the science of the activities of the Individual." In this definition of psychology, the terms 'science', 'activity' and 'individual' are significant.

Psychology is a 'science'

Psychology is a science. Scientific method is the main characteristic of science. This method includes the various steps of observation, recording, classification, generalisation and verification. Besides the scientific methods, the science is factual, universal and veridical. It discovers the cause and effect relationship between various phenomena. On the basis of this discovery it predicts the future course in various spheres of life. Psychology as a science, uses scientific methods. Modern psychology very widely utilises the experimental method which is as much scientific as any other method in the strict sense of the term. Psychology is factual because it depends on the facts. The psychologist observes behaviour with an objective attitude, notes it, classifies and compares it and finally finds out general principles based on common factors. He does not pass a judgment on behaviour, but only discovers its general principles. These principles of psychology are universal if the circumstances do not change. They can be verified by any one at any time and at any place. On the basis of these principles the psychologist can predict the future course of human beings and groups. Thus psychology is a positive science of behaviour.

Psychology is the science of the activities

The term 'activities' as used in this definition has been taken in a very wide sense. It not only includes motor activities, but also cognitive activities like perception, memory, thinking, imagination etc. Together with these it also includes emotional activities and feelings, etc. As a matter of fact according to Woodworth, "Any manifestation of life can be called an activity". Every individual is placed in a certain environment. The life of the individual develops through constant action and reaction between him and the environment. In this process, he is changed by the environment and adapts himself to it, but he also makes significant changes in the environment. Psychology studies the individual in his relation to this enviranment. The individual gets stimuli for activities from the environment and responds to them. Some times he resists the environment and tries to change it. The survival of the organism depends on this adjustment with the environment. This close inter-action between the individual and the environment has been symbolically expressed as :

W—O—W or O - W - O. (O=Organism, W=World)

The behaviourists have explained this by their S-R. (Stimulus-Response) formula, which has later been modified as S-O-R. Stimulus-Organism-Response. The responsibility of the individual towards the environment is determined partly by the environment and partly by the structure of the organism, the temporary mental state of the individual and finally the activity in the progress. The response of the individual is very much influenced by the preparatory state of readiness or adjustment. The psychologist considers these factors working in the activities of the individual in an environment.

As has been already pointed out, psychology concentrates on the individual in its study of behaviour. The individual is not a

Psychology is the science of the activities of the individual.

man at a particular time, but rather a unique person who continues from birth to death. His individuality is known by his characteristic way of re-action and adjustment with the environment. There is a continuity in his ways of adjustment from birth to death and in different situations. This continuity is due to his individuality. The psychologist, while studying the behaviour of the individual keeps his eye on this continuity in man. Thus psychology studies the child, adolescent, adult and the old. It studies the man from the cradle to the grave. It studies men in various stages, because there is a continuity in all of them. It compares the normal and abnormal, child and adult, man and animal. It also studies the individual differences from man to man, and finds out common principles equally applicable to all the individuals.

As is clear from the explanation given above, the above mentioned definition of psychology is quite serviceable if the term activity is taken in the wide sense which Woodworth gives it. It is however, not clear from this definition whether psychology is a positive or a normative science. To make it clear it is better if the definition is put as "psychology is the 'positive' science of the activities of the individual."

* * *

Q. 10. **Discuss the extent to which psychology is an exact science.** (*Punjab 1956*)

Discuss the nature of psychology as a science and point out the characteristics of its experimental method. (*Jodhpur 1965*)

Ans. Before discussing the claims of psychology to be called an exact science it is necessary to find out the meaning of the term science itself. Science is a systematic study of a limited field of experience Thus a study can be called a science only when it has a limited field to study and a systematic method to use. It is however not the subject matter of a study that makes it a science, but its method. It is the method of science which distinguishes it from art and philosophy. Thus to understand science, it is relevant to analyse the various necessary steps in the scientific method :

What is Science ?

2326

Steps in scientific Method

Scientific method requires much creative imagination, objectivity, patience and hard labour. It requires a scientific attitude or spirit in study. The following are the main steps in a scientific method :

(1) **Observation** : The first step in a scientific method is to observe the object of study closely and carefully. This observation requires various types of apparata and instruments. These apparata and instruments must be correct and exact.

(2) **Recording** : Another step in scientific method is the recording of whatever is observed. This requires detached objectivity.

(3) **Classification** : After the data are gathered the scientist classifies it according to the facts. As Karl Pearson writes, "The classification of facts, the recognition of their sequence and relative significance is the function of science." The classification is done in such a way that certain relation and pattern may be observed in the scattered data. Thus by classification the data are organised on a particular pattern.

(4) **Generalisation** : The fourth step in the scientific method is generalisation. By generalisation scientific laws are discovered from the classified data.

(5) **Verification** : The last and yet the most important step in scientific method is the verification of the laws that have been discovered. Scientific facts are veridical. They can be verified at any place by any one under suitable conditions.

From the discussion of scientific method as given above, it is clear that a science must have the following essentials :

(1) **Scientific method** : It goes without saying that no study can be called a science without having a scientific method.

(2) **Factuality** : Science is factual. The scientist studies the facts with an objective attitude.

(3) **Universality** : Scientific principles are universal. They are found true in all times and climes.

(4) **Veracity** : Scientific principles are veridical. They are subject to verification and are verified through scientific methods.

(5) **Discovery of cause-effect relationship** : Science finds out cause-effect relationships in the subject matter of its study and discovers universal principles.

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(6) **Predictability** : On the basis of these cause-effect relationships, the scientist predicts the future course in various phenomena and these predictions come true because they are based on universal factual principles.

Psychology is science

After elaborately discussing the nature of science, the claims of psychology to be called a science, can be easily examined. It shall be found in sequence that psychology has all the essential characteristics of a science as given above.

(1) **Psychology uses scientific methods** : Almost all the methods of psychology are more or less scientific in their nature. Of these the experimental method is the most exact. It is no less scientific than any method, used in other sciences. Modern psychology widely uses this method in all its branches. In the experimental method the dependent and independent variables are distinguished, the dependent variables controlled and the effect of the independent variables observed. Thus in the experiment, the psychologist observes a certain phenomena in strictly controlled situations. He also uses various types of instruments, e. g., chronoscope, a highly sensitive clock, used to determine the interval time down to the thousandth part of a second in reaction experiments. The psychological laboratories are continuously developing and new and more exact instruments are being constantly put to use. By these instruments the psychologist observes the phenomenon, notes it, compares and classifies it and discovers various principles through generalisation. These general principles in psychology are as much veridical as a scientist demands. It should be noted here that all other methods used in psychology are not as exact as the experimental method, but more and more efforts are being made to secure as much exactness as possible. Whatever difference of opinion may there be among the psychologists regarding the merits and demerits of particular method, all agree that the methods utilised in psychology must be scientific.

(2) **Psychology is factual** : Psychology studies the facts of behaviour. The psychologist is detached and objective in his observations and experiments. The proper field of psychology is not values but facts.

(3) **The laws of psychology are universal** : The laws of modern psychology have been found to be correct in every time and place, given the same conditions. The general principles of human

psychology are universal, whatever differences their may be in the psychology of different individuals, e. g., the psychological fact that human beings and animals are emotionally disturbed by any impediment in the circumstances of their instinctive tendencies, is applicable everywhere.

(4) **The laws of psychology are veridical :** Thus by verification and re-verification psychological principles have been found to be true everywhere. They can be verified by any one. To illustrate, it is a psychological fact that wherever there is some mental abnormality, there are some frustrations behind it. This fact has been verified by the clinical psychologists. By discovering these frustrations and truamas, one can trace the causes of the particular abnormality.

(5) **Psychology discovers the cause-effect relationship in human behaviour :** Psychology not only observes behaviour, but also finds out cause-effect relationship in them, e. g., psychology has discovered why and in what circumstances a child becomes a delinquent or degenerate. These findings have been put to use and found correct. Thus psychology discovers the 'how' of behaviour together with its what.

(6) **Psychology predicts human behaviour :** By discovering the cause-effect relationship psychology also predicts human behaviour and these predictions are generally correct. Thus in the modern progressive countries, appointments to different Government posts are made by relying on the predictions done on the basis of psychological tests. On the basis of psychological tests, it is predicted that such and such person will be a good soldier and so and so a good administrator ; and generally this is also the case in actual experience.

From the discussion on psychology as a science, as given above, it is very clear that its claims are justified. Thus psychology is an exact science. This, however, does not mean that its exactness is the same as that of physical sciences. As a matter of fact the demand of identical exactness from widely different sciences, is un-justified. The exactness of a science very much depends on its subject matter. It is clear that a science which studies mind or behaviour cannot be as exact as the science studying the physical things, because behaviour is a complex, changeable and dynamic subject of study. Hence while calling psychology an exact science, the

Limits of exactness in Psychology

limitations of this exactness must be kept in mind though these limitations also are never fixed and perfectly determined. With the invention of new instruments and the discovery of new methods, psychology will become more and more exact, though it can be said at the outset that its exactness should never be compared with that of physics and chemistry, for reasons already mentioned.

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Q. 11. **Explain the nature, scope and use of Psychology as a science of behaviour.** *(Poona 1965)*

Ans. See Answers to Q. No. 10, 5 and 4.

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26

2

METHODS OF PSYCHOLOGY

Q. 12. Write short note on—Introspection.

(Agra 1960; Gorakhpur 1964; Benaras 1964; Ravishankar 1965)

What is Introspection ? What are its difficulties ? How far can you overcome them ? *(Punjab 1962)*

Explain clearly the exact nature of Introspection as a method of Psychology indicating its limitations and value.

(Bombay 1959, 1958; Punjab 1951; Muzaffarpur 1965, 1964; Bihar 1964; Gujrat 1964)

What is Introspection ? Can Psychology do without the use of Introspection as a method ? Discuss. *(Punjab 1953)*

What is Introspection ? Discuss its value in the analysis of mental processes. *(Calcutta 1958, 1950; Karnatak 1964, 1965)*

Ans. Introspection is one of the most important methods of psychology. The psycho-analysis school has widely utilised this method. But the behaviourists are vehemently opposed to it. Watson, the founder of the school of behaviourism was absolutely opposed to this method. As he said, "introspection forms no essential part of its (of psychology) methods nor is the scientific value of data dependent upon introspection in terms of consciousness......" This criticism of introspection has however not been accepted by most of the modern psychologists. Woodworth and others have defended introspection method with elaborate arguments. But to assess the real value of this particular method and to find out its limitations, it is necessary to examine its uses and limitations.

Nature of Introspection

To introspect means to look within. Thus introspection is an internal perception. In it the psychologist himself observes his internal activities and processes. This method is indispensable in the description of individual experiences, *e. g.*, if a man goes to see a picture and returns after seeing it, it is only through introspection that he can tell others how he feels about it. It is said that the advent of youth changes the behaviour, mental conditions and the psychological processes of the individual. But how a young man feels is only a matter of introspection and can be explained only by him who has passed through this stage. Thus in the field of feelings, emotions, sentiments, prejudices and various types of internal experiences, *e. g.*, love, hate, pleasure, pain, fear, memory, thought and effort etc. a man can know them only by introspective analysis. No man can know another by the observation of his overt behaviour. The pangs of separation from someone dear to us is not a matter of understanding or logic or observation, but purely of introspection. Thus introspection is indispensable for the study of internal behaviour.

Need of this method

Psychology not only studies the overt behaviour, but also the internal processes. It is the science of behaviour. Behaviour, as it is taken to-day, includes the internal experiences as well. These internal experiences cannot be known by external observations. They can be known only through introspection by the subject himself. In introspection the individual himself systematically observes his inner mental processes and feeling for this purpose the observer cannot take the help of the instruments or the observations of another person. The observer can introspect his mental processes wherever and whenever he likes to do so. Thus the method of introspection has been proved to be very valuable in the field of psychology. Introspection is a unique method of psychology. It is not found in other sciences, physical or social. Inspite of what the behaviourists say against it, psychology cannot dispense with introspection

Limitation of Introspection

But every method has its own limitations peculiar to itself. Hence introspection method also has its own limitations. Roughly, its limitation are as follows :

(1) It is truely said that the mental processes can be directly observed through introspection. But this data cannot be the basis of generalisation since it is not necessary that the experience of other persons should be identical with that of the observer.

(2) By introspection one cannot know the experience of others and so cannot compare one's own experience with it. Other's experiences can only be known through observations of

experiments. Hence, introspection alone is neither sufficient nor the most important method of psychology. Observations and experiments are definitely more valuable and important methods of psychology.

Difficulties in Introspection

Every method has its own difficulties peculiar to itself. The method of introspection has also its own difficulties. The following are some of the main difficulties of the method :

(1) **It is difficult to attend the mental processes** : There is difference between the perception of the object and the observation of the mental processes. The objects are material and concrete while the mental processes are psychic and abstract. Hence, it is not easy to attend the mental processes. One cannot observe them without much effort in concentration, and concentration is a difficult feat. Thus observation the mental processes through introspection is a difficult effort.

But this difficulty in introspection is not insurmountable. Introspection un-doubtedly requires more concentration and the new comer has only a few chances of success in it. But this difficulty can be removed by adequate practice and training. As a matter of fact introspection requires long training. Training and practice improve the capacity for abstraction and concentration. It makes introspeetion more valid.

(2) **It is difficult to grasp mental processes** : Mental processes are changeable. The thoughts, feelings, desires etc. are constantly changing. But observation requires a fixed object. It is only then that one can easily observe the external objects. But as soon as one attends to the mental processes, they disappear. Then how can they be observed ? If a psychologist wants to know his mental state in fear, it is likely that fear may disappear as soon as he looks at it or introspects.

This difficulty in introspection is really valid to some extent, but it can be removed with the help of memory. In the examp'e of fear it is a fact that it disappears as soon as we attend to it, but the feelings, in the state of fear can be recalled with the help of memory and analysis. By practice and sufficient training, even the changing mental processes can be grasped. Besides, various observers can co-ordinate their observations and thus arrive at some general conclusions. A psychologist may introspect his own experience in the state of fear and other psychologists may also do the same. Now these statements may be gathered together and compared leaving the un-common elements, and generalisation can be made on the basis of the common findings. Thus memory, mental alertness and the comparison of the data given by the different observers may help one in grasping the changing mental processes during introspection.

(3) Many psychologists cannot study the same mental state: Another difficulty which has been pointed out against introspection, is that many psychologists can study similar mental processes but not the same, *e. g.*, in the case of the study of fear, every individual psychologist will study only his own personal experience of fear. How can any one arrive at some general principles by the comparative study of the data supplied by different individual psychologists ? Such a description will not be the study of fear as a general state, but a collection of the experiences of fear in different individuals.

But a careful observation of this difficulty will make it clear that it is right to say that many persons cannot observe the same mental state, but generalisation in science depends on the common element found in different phenomena of the same species. Uniformity of human psychology is a postulate on which the entire edifice of psychology as a science, has been built up. It is a fact that no two men are the same and yet there are laws universally applicable to all human beings. It is for this reason that the results of the experiments done on Germans are equally applicable to Americans. Thus it is clear that the fore-going difficulty is not genuine.

(5) In introspection the mind is divided : Another argument against introspection is that in it the same man is the observer as well as observed and so he is divided into two parts since mind cannot look to itself without such division. It is on the basis of this argument that Comte has rejected introspection as impossible.

But practically this objection seems to be baseless. In practice we do experience the inner states of fear, curiosity and lust etc. A man says that he feels fear, another says that he feels pain. In both these states, these men are observing their mental processes. As a matter of fact, self-consciousness is a characteristic of the human mind. We are self-conscious and we know that we are self-conscious. This fact may not be proved by logic, but it is amply demostrated in experience. Direct experience is self-evident and it requires no logical proof for its validity. Just as we can observe things outside us. similarly, though not exactly, we can observe our internal experiences as well. This observation can be made more exact with practice and training.

(6) It is impossible to observe the object and the mental processes at the same time : In introspection some times one has to observe a mental state which is the result of some external object. As Stout points out, "If a man observes the object of perception he will have to attend the object of perception as well as the activity of perceiving it." In this situation the difficulty is that if one attends the object, he cannot attend the mental state and vice-versa. Hence, introspection is impossible in such situations.

The argument against introspsction method is valid to some extent because mind can attend one thing at a time, but even this difficulty can be removed by certain measures. One way is the rapid oscillation of the attention between the object and the mental state so that both may be observed continually, if not simultaneously. Another way is to attend the object with the aid of memory and to remember the mental state in such attention.

(7) The knowledge of introspection is subjective and personal : Another argument against introspection is that knowledge gained by it is subjective and personal. Hence the introspective data cannot be the basis of scientific principles. This difficulty however, can be removed on the one hand by training and practice and on the other by collaboration of different psychologists in a particular study. These efforts will remove the subjective and personal elements from psychological data.

The critical analysis of the different difficulties pointed out against introspection makes it amply clear that it is a useful method in psychology and can be made still more useful. But this should not make one forget the limitations of this method. In many situations introspection method is entirely useless *e. g.* in the study of the psychology of the children, insanes and abnormals, patients and animals, the method of introspection cannot be used. It is clear that here other methods, particularly those of observation and experiment are useful. Introspection is an indispensable method in psychology, but modern psychology uses it only sparingly since its results are not so exact and verifiable as those gained by other methods. The method of introspection has its own limits and is less factual than others. But not only from the historical point of view, from the practical point of view, also, introspection method cannot be eliminated from the field of psychology. Its value stands unquestioned in its own field.

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Q. 13. **Describe a psychological experiment. What are the advantages and disadvantages of the experimental method in psychology ?** (*Karnatak 1964, 1965 ; Varanasi 1965*)

What is the nature of experimental method ? How does psychology employ this method ? (*Punjab 1959, 1955, 1950*)

Explain with examples the Experimental Method in psychology and discuss its value. (*Bombay 1959 ; Gujrat 1958 ; Benaras 1957*)

Discuss the limitations of the method of experiment in psychology. (*Baroda 1959*)

What is a psychological experiment ? Illustrate through examples the salient features of such an experiment. (*Punjab 1963, 1959 ; Nagpur 1955 ; Poona 1960*)

Examine the advantages and limitations of the experimental method in psychology. (*Gujrat 1958 ; Poona 1960*)

Value of Experimental method

Ans. Psychology is the positive science of behaviour. Science is a method. It is distinguished from philosophy on the basis of methodological difference. Science is the study of any object by scientific method. Hence if psychology is to be called a science, it should use scientific methods, *e. g.*, introspection, case history and observation etc. But experimental method is the most important method in the study of psychology. It is this method which has the credit of bringing psychology to the level of an exact science. Hence modern psychology places greatest emphasis on experimental method.

What is Experimental Method

According to Garret experiment is a question asked systematically. Thus in experiment, the experimenter has a problem before him. He experiments to find out the answer to this problem. The clarity of the answer depends upon the clarity of the question. The question is based on a hypothesis. This hypothesis is proved or disproved by the experiment, *e. g.*, suppose that while studying or teaching some one thinks that motivation has its role in study. This is merely a hypothesis. To examine it, it is placed in the form of a question—does motivation effect study ?

To get an answer to this question it requires psychological experiments. Suppose by the experiments one arrives at the result that motivation is useful in the study : this proves the hypothesis. Now another question might be raised as to how far motivation helps in study ? This question will lead to further experiments in this line. In this way various types of enquiries can be made through the method of experiment *e. g.*, experiment regarding the effect of motivation on study. Similarly, the effect of smoking on study, of family environment on the child, the effect of intelligence and practice in learning etc., may be put in the form of the questions and experiments can be performed to get answers to them. In the experimental method, the observation is held in certain predetermined conditions. Thus experiment is a controlled observation. It is the observation of the behaviour or activity in fixed circumstances. The characteristic of this observation is that it can be repeated in different places and times without difference in results.

There are the following steps in a typical experiment :

Steps in Experiment

(1) **Raising a problem** : The first step in an experiment is the raising of the problem *e. g.*, it is said that smoking is harmful to the students. On the other hand some say that it helps in concentration. Those who are neither for nor against smoking may say that it is not smoking but the personality of the student which is relevant to his results in examinations. This discussion creates a problem about the effect of smoking on physical or mental capacity. This problem may lead to further experiments.

(2) **Formulation of a hypothesis** : The second step in experimental method is the formulation of a hypthesis. In the example of smoking the problem of its effect on physical and mental capacity can be put in the form of a hypothesis. This hypothesis will be like this "smoking is harmful for physical and mental capacity." Now this hypothesis will be tested by experiments.

(3) **To distinguish independent variable and dependent variable** : The third step in experimental method is the distinction between independent variables and dependent variables. In the example of smoking, the physical and mental capacity will be the dependent variables, since they will be fixed in experiment. Smoking will be an independent variable since the aim of the experiment is to find out the effect of its presence and absence.

(4) Controlling the environment or situation : The fourth and the most important step in the experimental method is controlling the environment or situation. There are several difficulties in the above mentioned experiment on smoking. It is just possible that the subject may try to prove that smoking has no effect on physical or mental capacities. But to neutralise these possibilities the experimental situation is controlled. In the experiment on smoking, the eyes of the subject were closed by bandage. Two exactly similar holders were used. One of these holders had an electric wire through which the subject might inhale the warm air, while the other holder had a common cigarette. In all the sessions of the experiment all types of sounds, related with smoking were made, *e. g.*, the rubbing of the match etc. At the end of the experiment there were sticks and ashes lying round about, so that the subject might think that he really smoked. The subject cannot touch cigarette at any time. The experimenter himself puts and takes away the holder from his mouth. In the sessions, when cigarette was not given to the subject, the experimenter himself smoked. To stop the signs received by the smoking sequence of giving and taking away the holders, the sessions of smoking and not smoking were kept irregular. These special arrangements in the case of experiment of smoking are necessary in all types of experiments. The arrangements of control differ according to the nature of experiments. In the case of man some special types of controls are necessary so that the subject may not know the principles of the experiment, since it is feared that this might make difference in his mental attitude. But in the case of experiments on animals this difficulty is not there. So there are different types of controls in the experiments on animals, *e. g.*, Pavlov, in his experiment on conditioned reflex in the dog made special arrangement for the flow of saliva and to gather it out side dog's mouth.

(5) Analysis of the result : The fifth important step in the experimental method is analysis of the results. Generally the subjects of the experiment are divided into two groups--one controlled and another experimental. In the experiment on smoking every subject was also his controlled subject. All smoked half times and in the remaining half they inhaled warm air. The experimental groups is often called independent variable, since the experimenter can stop it or modify it. In the experiment on smoking, cigarette is an independent variable and the results of its presence have been compared with the results of its absence. For the analysis of the results of the experiment, statistical technique is used.

(6) Verification of the hypothesis by the result of the Experiment: The sixth step in experiment is the verification of the hypothesis by the result of the experiment. The result of the experiment exhibits whether the hypothesis was right or wrong. In the experiment on smoking, it was found by the comparison of the sessions of smoking and non-smoking that there was very little difference in the results. Smoking increased heart-beat and the trembling of the hand. This effect was observed more in non-smokers than the smoker subject. No influence was observed on mental capacities known by mental tests. After 18 days of smoking it was concluded that it had very insignificant effect. This result disproved the hypothesis.

Like other methods, experimental method has also its own limitations. The following are the most important limitations of experimental method :

Limits of Experimental Method

(1) Artificial situation of Laboratory : Artificial situation of laboratory is a characteristic of experimental method as well as its limitation. In the experimental method the experimenter leaves some variables independent, but controls other variables. But it is very difficult to ascertain all the variables working in a particular situation, *e. g.*, in the attainment of scholarship, the hours of work, the hours of extra-curricular activity, anxiety for future, interest in the social work, motivation for social work, hours of study etc., were controlled and the time given for student's study was increased and decreased. The result by the increase and decrease of the hours of study shows its effect on scholarship. But it is possible that the variables, controlled in this experiment may not exclude all those which affect the attainment of scholarship. As a matter of fact it is very difficult to ascertain all the factors affecting the attainment of scholarship in a man and the result is that the effect of some of the factors might be alluded to some other.

(2) Difficulty in the control of the attitude of the subject : Another limitation in the experimental method is the difficulty in the control of the attitude of the subject In experiments on men it is often very necessary to control their attitudes, since if the subject is opposed to the experiment or careless towards it, he might give wrong answers or keep silent. But it is not always easy to control the attitudes of the subjects specially when they are children or students. This makes the result of the experiment unreliable

(3) Difficulty of securing the co-operation of the subject: Another difficulty in experimental method is the difficulty of securing the co-operation of the subject. Experimental method is impossible without the co-operation of the subject, but the co-operation is not always easily forth-coming. It is possible that the subject may show himself fatigued or not-fatigued according to his attitude or give false replies. This difficulty makes experimental method unreliable.

(4) Limited Field—The last but not least, important limitation of the experimental method is the limitation of its field. In several matters it cannot be applied at all, *e g.*, if one has to know the effect of bad environment on child's development, it is not possible to place some children in bad environment and to wait for the results. Again in the case of the mental states, like love etc., it is neither possible to control them nor to create them in the laboratory. These and many other phenomena can be studied only though observation or introspection etc.

Inspite of above limitations of the experimental method, it is undoubtedly the most important and valuable method in psychology. It is by this method that the psychologist arrives at the most exact conclusions about behaviour. But experimental method is limited to only those aspects of human behaviour, where one may hope to arrive at exact conclusions. On the other hand some aspects of human behaviour are so changeable and complex that one should be satisfied with their observation and arrive at some workable conclusions. The field of experimental method however, is gradually being widened with the advent of new inventions, regarding tools and instruments. If observation and introspection methods have widened the field of psychology and made it more useful in daily life, it is the experimental method which has secured a respectable place for psychology among the sciences. In the world outside the limits of laboratory, man will always learn by experience and observation but it is on the experimental method alone that the future of psychology as a science depends.

Q. 13. What is the case history method in psychology ? What is its special value ? What are its defects and limitations ?

(*Punjab 1952; Agra 1954*)

What is Case History Method

Ans. Psychology to-day is widely used for the cure of various types of abnormalities. The parents as well as the teachers today seek the guidance from the psychologist in their dealings with the children and students. They complain of the abnormality of the children or students, to the psychologist who with their help finds out the causes and tries, to remove them. Thus to-day one finds a flourishing branch of psychology in the form of abnormal psychology. In the Western countries the frequency of nervous diseases. is gradually growing as the rush of life is increasing with industrialisation and urbanisation. This has increased the necessity of abnormal psychology. Abnormal psychology and psychiatry use a certain method known as case history in their study of abnormal cases. As is clear by the name of the method, in this method the psychologist traces the whole history of the case. The tracing of the history requires not only the statement of his history by the patient, but also whatever can be gathered from his relatives The psychologist interviews all the near relatives of the patient and also his friends. By this interview much is known about the habits, routine, thinking, nature etc , besides the various incidents of the life of the patient. This interview also makes the psychologist know the various types of relations which the patient has with different persons. Again, the patient is asked to relate his life history so far as he can remember. He is also asked to relate his dreams etc., and they are interpreted by the psychologist as soon as they give all ideas about the infantile life of the patient. All the data gathered through the patient as well as those related to him in some way give an outline of the history of his case. By the analysis of this history the psychologist tries to find out the causes of the abnormality. Suppose a child whose behaviour is not normal, or who has run away from the school several times, is taken to the psychologist. The child is ill-mannered and bad-tempered. He does not bother about punishment or dictates of the elders. The psychologist interviews the parents and other relatives of the child and tries to know his case history. He takes the child with him in to a room and sympathetically tries to know various things about his life. In short he enquires about everything concerning the child and his relations with others. An analysis of all this data gives an idea about the causes of abnormality, truency or bad manners. If the causes are discovered, the parents and teachers are guided accordingly and the malady is removed.

Example of a case history

An example from the report by Katherine, M. Mourer known as a *Behaviour Problem in a Young Child* will give an idea as to how the clinical psychologists use the case history method—

The case

Lousy was 3 years and 9 months. She was very obstinate and short-tempered. From an interview with her parents it was learnt that the father and mother held each other responsible for bringing up the child as emotional and un-balanced. Then they were interviewed separately. An aunt of Lousy and a nursery teacher were also interviewed. In the interview Lousy's mother described her family back-ground. She told that Lousy was born normally and that her mother-in-law did not take part in the household work but remained with Lousy for hours. Lousy had acute constipation. She had occasional fits in which she lay down on the ground, cried and attacked others. Lousy's mother did not want to disclose her marital adjustment. Her mother-in law, severely criticized her friends, her household management and her behaviour towards Lousy.

The Facts

Lousy's problem began at the age of 2. At the age of 3 she liked to hear stories instead of playing with the children of her age. While among other children, she quarelled with them. She liked to live with her father and go for a walk with him, though when angry she did not spare even her father. Once when her father did not hear her, she bit him in the leg.

An interview with her father disclosed that he was proud of Lousy. He thought her to be very intelligent and described how Lousy paid attention to him and worked like an adult woman. He expressed doubt in Lousy's happiness and that perhaps she never felt secure.

A physical examination of Lousy disclosed that exept some weight she had no physical abnormality. According to doctor, constipation was due to wrong habits of diet. Sucking the thumb, biting off the nails and turnning the hair, was clearly observed. When her father brought her to the psychiatrist, she appeared to be attractive, modest and feminine. When her mother brought her she appeared to be obstinate and un-manageable. Sometimes she struggled and quarrelled and lay down on the ground and cried, when requested by the mother to wear the coat. Psychological tests showed that she commanded a vocabulary found in a child of 8 years and that she was more intelligent than the average. The powers of language were far more developed than the physical powers.

The clinical psychologist came to the following conclusions about Lousy's abnormal behaviour :—

The Diagnosis

She was a very well developed and brilliant child with an attractive personality, She was used to close attention and company of the adults, and her daily routine was extremely un-systematic, resulting in fatigue. This resulted in absence of harmony in the parent-child relationship. She did not get opportunity of adjustment with the children of her age. Her intellect was too much developed because of absence of variety in experience. Her capacity did not develop harmoniously and her word powers were excessively developed beyond motor capacity. She understood her weakness which made her adjustment on child's level still more difficult. She appeared to be an extremely fatigued small child tyrant who did not get emotional contentment from her mother and was emotional, introvert and dependent on her father.

The psychologist mainly recommended the following things for her:—

Recommendation of the psychologist

Friendly relations with mother should be established and her life at home should be re-organiceed. She must get more sleep, balanced diet and should play with children of her age. In the evening she must be attended by some members of the family mother, father or grandmother. The mother should feel that she is responsible for the progress of the child. But father and mother-in-law were also told that they should change their routine in order to make the relations of mother and Lousy better. The child was admittted into a nursery school and arrangements were made between the school and clinic so that she might not be turned out of the school before she could be reformed. In the beginning, Lousy felt it difficult to adjust herself to the nursery school. But after some years, it was found that Lousy was far more brilliant than the children of her age in studies as well as scouting etc. But she could not over-come her early weaknesses which lay in lack of affection for the mother and excessive attachment to daddy. At 15 years of age, she was a beautiful girl who appeared to be very able and behaved with a balance. She had no nervous habits. According to her own report her greatest happiness was to work with daddy. The man whom she dreamt to marry was exactly like daddy.

The example cited above shows very well the problem, the procedure and the work of the clinical psychologist with the aid of the case history method.

Limitations of Case History Method

Like other methods in psychology, case history method has also its own difficulties and limitations. One of the limitations is that it is very difficult to know the whole history of any patient and to observe it objectively. It is possible that while relatives are interviewed they may be prejudiced in their answers or try to hide some thing unpleasant. In the case of the children, it is difficult to know their history through them, because their memory is neither strong nor reliable and the psychologist has to depend upon the reports of the relatives. It is possible that the parents do not observe something about the history of the child which is very important for the case. These and other limitations make it difficult for the clincal psychologist to arrive to a proper diagnosis. In the case of the adult, abnormals etc., however, the psychologist gets the data of their dreams, analyses them and finds out some un-conscious causes. He may also ask the patient to explain things about his childhood and tell the psachologist his history. The psychologist may question him from time to time and can get much out of his statements. Thus in the case of the adult abnormals, the difficulties are less than those in the case of the chil . This however, does not mean absence of difficulties and limitations which are always there. But in the ultimate analysis the case history method has proved to be very valuable for the diagnosis of mental abnormalities. As a matter of fact it all depends upon the experience and ability of the psychologist as to how far he is able to gather a history and analyse it to find the real causes. A psychologist like Sigmund Freud can very well make use of a case history to discover the causes of the most complex type of abnormality.

* * *

Q. 15. **Explain the principal methods of study used in psychology. What are the problem of psychology ? Mention some of the important methods which are used in their study.**

Define psychology. What are the various methods used in it ? (*Baroda 1965*; *Bombay 1965*)

(*Ravi shanker 1965*; *Poona 1959*; *Madras 1964*; *Bombay 1964*)

Ans. See answers to the Q. Nos. 1. 10, 11 and 12.

Q. 16. **Explain clearly the subject matter and the method of the science of psychology. Is Psychology an exact science ?**

(*Punjab 1958, 1956*; *Calcutta 1952*)

Ans. See Answers to Q. Nos. 3, 19, 11, 12 and 1.

Q. 17. **"Introspection and objective observation supplement each other.' Discuss fully.** (*Bihar 1959*)

Need of both the methods

Ans. Psychology is the positive science of behaviour. Behaviour includes both external activities as well as internal experiences and feelings. Psychology studies both these external and internal aspects of behaviour. Hence it requires both the methods of introspection as well as that of external observation. Internal behaviour or internal experiences and feelings are known through the method of introspection. External behaviour or activities are known through external observation.

Neither can substitute the other

Thus neither introspection nor observation can substitute each other. In some cases the introspection method is entirely useless and cannot be woked out, *e.g.*, a religious man cannot understand through his introspection what a man can do under the impulse of sex or hate. His imagination, based on his own experience cannot take him far, because he cannot even imagine all things which are actually possible. Hence here he must take recourse to external observation. Similarly, most of the phenomena in child psychology, animal psychology and abnormal psychology are known only through external observation, since neither the child, animal or abnormal person can introspect, nor the psychologist know their experiences through their own introspection.

Similarly, the method of external observation is useless in many cases *e. g.*, the difference between the feelings in fear, love, affection and jealousy etc. cannot be known through external observation. It is only the introspective method which will work here. Thus it is clear that both the methods of external observation as well as that of introspection are equally necessary in psychology.

Both supplement each other

This discussion makes it clear that "introspection and objective observation supplement each other." Where one method fails another method works and because every behaviour has an internal and external aspect, its study requires both these methods, except in the cases in which either of these methods is entirely useless. Again both these methods mutually examine each other, *e. g.*, if the experience of the majority of normal persons regarding a certain object is of a particular type, we can examine the validity of our own introspective experience. If it differs from the experience of almost all the persons, it should be classed as abnormal, if not wrong. Similarly, if some one is sure about his own introspective experience, he examines the experience of others on its basis and declares them as normal or abnormal, true or untrue. For example, a man who has experienced divine bliss or most intimate love, can judge the validity of attachment and connected emotions in others. Thus, in brief, the methods of introspection and observation are mutually complementary.

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Q. 18. **Describe the nature of the method of objective observation in psychology. To what errors is it liable.** (*Karnatak 1964*)

Compare the method of observation with the experimental method and point out the limitations of the method of observation. (*Gujrat 1964*)

Critically examine Observation and Experiment as the methods of psychological investigation. (*Vikram 1963*)

Observation in General psychology

Ans. A hungry cat was put in a cage with food outside to determine how the cat learnt to come out of the cage. As the cat was hungry it tried to come out of the cage. Sometimes it tried to break the bars and at other times it fought with the door. Thus after trying for a long time it pressed, by chance, the button and thereby opened the door and came out. Now the cat was again put in the cage and it again tried to come out of it. This time it took less time to open it. This process was repeated again and again, and every time the cat took less time to come out of it till it mastered the trick to press the button and to open the cage. In this process it was clearly seen that there was a gradual elimination of the chance of errors. The cat began its act blindly and by chance arrived at the successful action. This successful action was led by several right reactions. Gradually the wrong reactions were eliminitated and right ones established so that the cat learnt the trick to come out of the cage. Thus it was concluded that the cat learnt through the method of trial and error. This conclusion was drawn through the observation of the cat's behaviour.

Observation in child psychology

Every one knows that a bad environment has bad effect on the child. This, however cannot be determined by actually placing a child in a bad environment. Which environmental factor affects evil character in the child, cannot be determined by placing him under the influence of that factor. Hence experimental method cannot work in this case. The child himself cannot be asked about his experience in a certain environment because he cannot analyse his own experiences. Hence the introspection method is also useless. Thus in cases like this in child psychology, it is only the observation method which can be helpful. The effect of the absence of parents on the child's development, can be determined only through the observation of the development of orphans.

Observation in social psychology

Every society has got some taboos regarding the sex behaviour. These taboos have influenced the development of males and females in a particular society. What shall be the influence on human development if all these taboos are removed ? This cannot be known by actually abolishing all the taboos since that will lead to disorganisation of society. This phenomena cannot be examined only by observation of the development of persons in the societies where there are very few or almost no taboos on sex activities. Similarly, facts regarding an insane and mentally abnormal person, cannot be determined either by introspection or through experiment. In such cases it is the method of observation alone which is serviceable.

Steps in observation method

The above mentioned examples regarding the observation method exhibit some of its particular traits. Roughly speaking, various steps in the method of observation are as follows :

(1) **Observation of behaviour** : The first step in observation method is the observation of behaviour. Observation literally means the examination or perception of some behaviour

or processes. In observation every thing or phenomenon is directly perceived, *e. g.*, the psychologist perceives the behaviour of the animals. If some one has to study the social behaviour of monkeys, he should go where the monkeys are assembled and observe their behaviour.

(2) Noting of behaviour : Observation in psychology is a scientific method. Hence it is sufficient to perceive a certain behaviour and to remember it. The observation on the other hand, should be carefully noted down. In the examples of the study of the social behaviour of the monkeys, the observer should carefully note down their various activities.

(3) Interpretation and analysis of behaviour : The third step in the method of observation is the interpretation and analysis of behaviour. If the behaviour is noted, it can be analysed at rest and the causes underlying it can be clarified. The movements of hands and legs, the sound, the gestures and other external activities, express the internal conditions of the person. In the case of animals their mental conditions are inferred from their external activities. The basis of this inference is not the experience of psychologist himself, but the behaviour of other animals and his own insight into animal psychology. Thus the behaviour is interpreted on the basis of analysis and inference.

(4) Generalisation : The fourth step in observation method is generalisation. Scientific principles are based upon generalisations. Psychology is a science, hence its principles are also of the same nature. In observation as a method of psychology, the purpose is to find out general principles. In the examples of the social behaviour of monkeys, various psychologists will observe their behaviour, note it, analyse it, interpret it and finally find out general principles through generalisation.

Like other methods of psychology, the observation method has also some defects or difficulties. The main difficulties are as follows :—

Difficulties in this method

(1) Influence of personal interest : In the observation method the psychologist himself observes, hence it is more likely that his personal interest should also influence his observation. In the example of the observation of the social behaviour in monkeys, if a psychologist has an excessive interest in sex behaviour, he will mainly attend to their sex activities and conceive them as more general than they actually are. Along with observation the personal interest also influences his interpretation. An excessively sexual person often interprets non-sexual behaviour of others as sexual. A wicked man finds some wicked purpose even behind the sympathetic action of others. A religious man would interpret even the sexual behaviour of others as pure and religious. Thus the behaviour is interpreted wrongly due to personal interests and attitudes. In the study of child, insane, and mentally abnormal persons, this difficulty is very much observed, because there is much difference in the mental activities of these persons and those of the psychologists.

The above mentioned difficulty in observation method is undoubtedly real, but it can be removed through scientific detachment. The mental conditions of others can be understood through constructive imagination. It is true that few have scientific detachment and constructive imagination, but these can be developed through long practice and training.

(3) **The possibility of bias** : According to the personal views and tendencies of the psychologists, there is a possibility of bias and prejudice in the interpretation of behaviour, e. g., in the countries where prejudices based on colour, are largely prevalent, the white psychologists seldom find good or higher traits in the behaviour of black subjects.

Indispensibility of the method

But inspite of the above mentioned limitations and difficulties in the method of observation, it is indispensible in psychology. As has already been pointed out, in many cases other methods are entirely useless and only the observation method works. In fact the behaviour requires training and practice to observe correctly and accurately. The observer should first analyse his own tendencies and remove pre-conceptions, prejudices, attachments and aversions and develop scientific attachment. Many of the things will be left without observation in the beginning or will be wrongly observed, but practice will make observation more accurate. It is experience and practice which make observation scientific. The expert psychologists can train the new comers in observation. The personal bias, prejudice and errors can be removed by comparison of the notes of several psychologists and through mutual discussion.

Q. 19. **Explain the nature of the developmental method and bring out its importance in psychology.** (*Punjab 1953*)

Value of the Developmental Method

Ans. Psychology not only studies human behaviour at a particular time, but also its development from birth to death. Thus psychology traces the mental and behavioural development of the individual from the cradle to the grave. In such a study, the psychologist has to face many difficult problems which have much importance e. g., the influence of heredity and environment in the development of the person, the favourable and un-favourable conditions of normal development and the phenomena of abnormality. These questions can be satisfactorily decided only when the psychologist observes human development in perfectly controlled conditions. If the psychologist observes the development of a child in controlled situations, he can be sure about the influence of different factors in it. This however, is very difficult to put into practice, e. g., in order to know the influence of the un-favourable conditions on the development of the child the psychologist cannot put him in an un-favourable condition as that will be contrary to ethical principles. Thus the psychologist will take the help of the observation of the development of the child in backward communities and the child placed in un-favourable circumstance, e. g., orphans etc. Such an observation obviously will not give him decisive knowledge as in the case of the experimental method and yet much valuable information will be collected.

Difficulty in Developmental method

Another difficulty in the developmental method is caused by the complexity and variety in development. As Prof. Woodworth beautifully puts it, "the child behaves so much that an observer cannot record more than small samples." Again, more observation of the child's development will not help the psychologist in arriving at any definite conclusion. To get at some definite conclusions, regarding the development, he must have some definite questions and definite hypothesis in his mind. The more the scientist is clear about his question, the more he shall be clear in getting its answer.

Thus it is clear that the developmental method is less accurate than experimental method and has more limitations and

A Dynamic Approach

difficulties, but efforts are being made to make it more and more useful. The developmental method has also been utilised in observing the development of animals and valuable information has been gathered by the comparison of the development of the animals with that of human beings. The main value of this method is that it keeps a firm eye on the dynamic aspect of behaviour which is often missed in other methods. Human personality is a complex whole which goes on developing from birth through maturity till death. The dynamic approach to psychology requires that particular human behaviour should be studied separately as well as in the light of the entire process.

Q. 20. **Describe fully with an example the experimental method of psychology. Can this method afford to ignore introspective data ?** **(*Rajasthan 1952*)**

Ans. For the description of the experimental method see question No. 11.

Psychology is a study of behaviour. Behaviour has both external as well as internal aspects. Of these the external aspect can be observed, but the internal aspect can be explored only through the method of introspection. Some internal process, e. g., blood pressure, heart beat etc., can be measured by certain instruments. But an instrument to measure the feeling has neither been invented nor one can hope of its invention. Hence experimental method cannot afford to ignore introspective data. To take an example, in the experiment of size-weight illusion, the subject raises different tins one by one. He begins with the tin which seems to be lighter than the standard tin. Thus he goes on raising the tins one by one till he declares a tin as double the standard tin. This examination is carried on in the ascending and descending order. The experimenter depends upon the introspective data given by the subject. The subject does not actually weigh a tin to tell its weight, but tells it only on the basis of his own experience through introspection. Obviously this introspective data cannot be ignored.

3

RELATION WITH OTHER BRANCHES OF KNOWLEDGE

Q. 21. **How is Psychology related to Physiology ? Discuss.**
(*Punjab 1953*)

Describe in brief the physiological basis of psychology.
(*Rajasthan 1964*)

Relation of Psychology and Physiology

Ans. Psychology is the positive science of behaviour. Physiology studies the physical activities and structure. It is the science of phsical body. It studies the respiration, circulation of blood, glandular activities and muscular activities etc. All these influence behaviour in some way or the other. There is a saying, "*Healthy mind in a healthy body*". Hence psychology and physiology are naturally related. Some sort of correlation can be observed between mental states and physical conditions. Neurosis and psychosis are closely related and the appearance of one generally leads to that of other. It has been very well proved from the psychological experiments that mental processes have a far reaching effect on physical activities.

Psychology is not a branch of Physiology

On the basis of this close relation of the mental behaviour and physical states, some scholars have conceived psychology as a branch of physiology. Mind, according to them, is only a function of the brain, According to this view consciousness is the result of certain activities of the physical body. But this view has been proved to be false both from logical and factual points of view. The study of the physical process helps in the understanding of mental behaviour, but this should not lead to the identification of both. Hence psychology is not a branch of physiology.

The fields of psychology and physiology are separate and different. The field of physiology is physical activities while that

Difference between Psychology and Physiology

of Psychology is mental activities and behaviour. The stand points of psychology and physiology are also different. Physiology studies the different physical activities separately. Psychology studies the reaction of the whole physical organism towards the external stimulus.

Physiological Psychology

Due to the close relation of the physical and mental activities, separate branch of psychology known as physiological psychology has been established for the psychological study of the physical processes. According to Hoffding, "*Physiological psychology is based upon the close connection of mental life with organic life in general.*" Physiological psychology studies the physical activities connected with mental processes. In it, the sense organs, nervous system, organism, brain, muscles, blood circulation and respiration etc., are studied. All these also form the subject matter of physiology. But where as in physiology these are separately studied, physiological psychology studies them as part of the behaviour of the whole organism.

Physiology studies endocrine glands. Physiological psychology discovers their psychological influences. This search has revealed much valuable information which has disclosed the causes of various physical and psychological processes.

Psycho-Physics

A special branch of physiological psychology is known as psycho-physics. In it the different physical activities are quantitatively studied. For example, Psycho-physics has discovered through experiments on the stimuli of different sense organs how much difference there should be between two stimuli so that the difference may be observed. The famous law known as Weber Fechner Law points out the quantity of least noticeable difference in the stimuli of different sense organs.

From the above discussion it is clear that though psychology and physiology are independent, yet they are closely related. In the words of Woodworth, "*The lines between these sciences are like the boundaries between friendly states that allow all the traffic across the border.*"

* * *

Q. 22. **"Psychology studies the individual's activities in relation to his environment." Discuss this statement and explain the relation of Physiology to Psychology and Sociology.**

(*Nagpur 1958; Punjab 1962*)

Ans. For the discussion on above statement see Chapter I.

For the relation of Psychology and Physiology see the last question.

PSYCHOLOGY AND SOCIOLOGY

Relation of Psychology and Sociology

Sociology is the science of society, i. e., that of social relationships. Psychology as Thouless points out, is the positive science of human experience and behaviour. Thus it is clear that the fields of psychology and sociology are very close to each other. Both are positive sciences. Both are factual and use scientific methods. The power of prediction in the case of both the sciences is less than that in other sciences. In both these it is difficult to be absolutely objective.

Differences in Psychology and Sociology

Inspite of all these similarities between sociology and psychology, there are also noticeable differences between them. Of these some of the most important differences are as follows :—

(1) The difference in attitude : The attitudes of sociology and psychology are wastly different from each other. As Mac Iver has pointed out, it is a difference of attitude in regard to a common material. According to psychology every action of man has some psychological basis. It studies human being as a person or individual in a certain environment. Sociology on the other hand, emphasizes more the society than the individual. According to it the basis of social behaviour of man is his tendency to live in the group. Thus while the psychological stand point is individual, the sociological stand point is social.

(2) The difference in unit : The unit of psychology is individual while the unit of sociology is the group. Thus psychology studies the individual apart from his cultural and geographical environment. Sociology, on the other hand, studies man in the context of society and as a part of it.

(3) Difference in the methods : Both psychology and sociology use different methods in their study.

Relation of Psychology and Sociology

Inspite of all the above mentioned differences, Sociology and Psychology are closely related. Without the understanding of human psychology, it is difficult to understand human activities and inter-relations. Similarly, without the knowledge of social relations, processes and phenomena, many of the secrets of human psychology remain unknown. Thus both these science are mutually helpful, In the words of MacIver, *Sociology in special gives aid to psychology just as psychology gives special aid to Sociology.*

Social Psychology

One of the most important branches of psychology is social psychology. It is here that one notices nearest relation between psychology and sociology. While defining Social psychology, Krech and Crutchfield have said, "*Social psychology is the science of behaviour of the individual in society.*" Social psychology is so much similar to sociology that Karl Pearson has not admitted any difference between them. In the words of Motwani, "*Social psychology is a link between psychology and Sociology.*" Thus the relation of psychology with sociology is very close. Lapiere and Fransworth have rightly said, "*Social Psychology* **is** *to Sociology and Psychology as bio-chemistry is to biology and chemistry.*"

Difference between Social Psychology and Sociology

Inspite of the above mentioned close relation between sociology and social psychology, there are some fundamental differences between the two sciences. Some of the main differences are as follows :

(1) **Difference in subject matter :** Sociology studies the social relationships, institutions, groups, etc. But social psychology studies the behaviour of the individual in group, crowd, mob, audience and other social situations. In the words of Klineberg, "At the same time it remains true that the primary concern of the sociologist is group behaviour and that of the social psychologist is the behaviour of the individual in the group situation." Thus the subject matter of sociology and social psychology are different. Bogardes has rightly said, "As psychology analyses mental processes so sociology analyses social processes."

(2) **Differences in attitude :** There is difference of attitude in the studies of sociology and social psychology. Social psychology studies the attitudes of the individuals towards the cultural and social values. Sociology studies social forms and values related

with these attitudes. W. R. H. Rivers has rightly pointed out that both these studies are closely related, but they should not depend on each other.

Thus psychology provides elemental facts to sociology while social psychology provides conditioning facts to it.

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Q. 23. **Give an account of the essential features of psychology as a science of human behaviour and discuss the relation of psychology with biology.** (*Gujrat 1964, 1958*)

Define psychology. How is it related to Biology and Sociology ? (*Varanasi 1965*)

Ans. For essential features of psychology as a science of human behaviour see answer to Q. No. 2.

PSYCHOLOGY AND BIOLOGY

Relation of Psychology and Biology

Psychology is a positive science of behaviour. This word behaviour includes external activities as well as internal processes and feelings. Biology studies the activities of living beings. It studies the origin and biological development of man and describes his racial, sexual, physical and individual characteristics and the principles of his adjustment to the environment. Darwin's theory of evolution is an example of biological theories. Human behaviour is the outcome of man's interaction with the environment. Hence behaviour cannot be fully explained without the knowledge of biological principles.

Differences in Psychology and Biology

Owing to this intimate relation of psychology and biology, some psychologists have forgotten their differences. Dr Watson, the founder of behaviourism emphasized animal psychology and tried to interpret human behaviour in terms of stimulus-response. This stand point is one sided, because as has already been indicated, modern psychology includes internal experiences in the term behaviour. Hence behaviour cannot be explained by biological conceptions. In fact there are some fundamental differences between biology and psychology which should be remembered while understanding their relation. These differences are as follows :

(1) Difference in field : The field of psychology is behaviour. The field of biology is all the physical and biological activities. Thus psychology does not include the study of those living beings in whom no behaviour is observed. Biology, on the other hand, studies all living beings.

(2) Difference in attitude : Biology studies man only as a being. Psychology studies him as an individual inter-acting with the environment.

From the above discussion it is clear that though closely related psychology and biology are independent sciences which mutually help each other.

Q. 24. **Define psychology in suitable words and trace its relation to philosophy.** *(Agra 1958)*

Ans. For definition of psychology see Q. No. 1.

PSYCHOLOGY AND PHILOSOPHY

Philosophy looks to facts and values in a systematic whole. To look things as a whole is the philosophical attitude. In it every thing is seen in the context of the whole universe. Thus it is clear that psychology is also included in the field of philosophy. Thus philosophical truths should be based on psychological facts. Hence philosophy and psychology are closely related. In philosophy epistemology is based on psychology. What is the origin of knowledge ? How is it realised ? What is its validity ? All such questions require a psychological explanation. Along with epistemology, metaphysics is an important branch of philosophy. In it also psychology is very much used. For example in Indian philosophy, psychological facts have been given an important place in metaphysical discussions. The philosophers have given elaborate discussions of mental and physical processes like deep sleep etc. and based their metaphysical conclusions on them. Besides epistemology and metaphysics, philosophy has two other important branches Logic and Ethics. The relation of both these branches to psychology has been discussed in the following questions :

In order to understand the relation of philosophy to psychology, it is necessary to know their differences as well, since otherwise some philosophers have declared psychology as a branch of philosophy. Though psychology has its early beginning in philosophy, it is now an entirely independent science with its own

Difference in Psychology and Philosophy

methods and stand point. The main differences between philosophy and psychology are as follows :

(1) The difference of field : The field of psychology is human behaviour. The field of philosophy includes the philosophical aspects of all knowledge.

(2) Difference in nature : Psychology and philosophy are different in their nature, because the nature of psychology is scientific and not philosophical.

(3) **Difference in standpoint** : The standpoint of philosophy is intergral and synthetic while the standpoint of psychology as a science is analytic and limited.

(4) Difference in methods : Psychology uses scientific methods as that of experiment and observation etc., while the methods of philosophy are meditation, concentration, logic, intuition etc.

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Q. 25. **What is psychology ? How is it related to Logic and Ethics.** (*Vikram 1963*)

Differences in Psychology and Ethics

Ans. Prof. Stout writes in his 'Manual of Psychology', "Ethics enquires how we ought to will not how we do will actually. Psychology on the other hand deals only with the process of volition as it actually occurs without reference to its rightness or wrongness or to the ultimate conditions which make rightness or wrongness possible." Thus psychology and ethics are different from each other. Of these some of the most important differences are as follows :

(1) Difference in the ***nature*** **of Psychology and Ethics** : As it is clear from the statement given above, psychology is a factual and positive science, while ethics is an ideal and normative science. Psychology studies the facts in order to find out the general principles underlying them. Ethics interprets these facts in the light of the moral ideals. Thus psychology studies "What is." Ethics studies "What ought to be." In the words of Seth, 'Ethics is the science of ought par-excellence."

(2) Difference in the ***field*** **of Psychology and Ethics** : The field of psychology is wider than that of Ethics. Psychology studies all the three processes of cognition, conation and affection. Ethics, on the other hand, is concerned only with volition. Even when it studies cognition and affection, it does so only in the context of will or action. It is only as directed towards some ideals that the ethics studies human experience.

(3) Difference in the ***stand point*** **of Psychology and Ethics :** Both ethics and psychology study human behaviour, but their stand point are different from each other. Psychology studies moral principles only as mental phenomena. Ethics studies psychological principles from the moral stand point.

(4) Ethics is not a branch of Psychology : Hence ethics cannot be held as a branch of psychology as has wrongly been admitted by some hedonists. As has already been pointed out, there are fundamental differences between psychology and ethics.

Relation of Psychology and Ethics

But still in some respects ethics is based on psychology. Ethics is the science of ultimate good. It searches for the ideals in human conduct. It examines the right and wrong of our actions in the light of the ultimate truths. It tells us what actions are right and what are wrong. But before we know the right and wrong, we must know the process of volition. This is the subject of psychology. Psychology tells us how we exercise will. Hence in order to know the psychological bases of moral volition, ethics is based on psychology. The nature of the will and its constitution, the motives of actions, desires, intentions, feelings and their inter-relations, the difference between the moral and the non-moral activities, the nature of inner-conscience, the relation of intelligence and will, the freedom of will and other phenomena, must be studied psychologically, before the knowledge of the moral ought. Any wrong notion about either of these will result in a defective conception of the ultimate good. A true ethics can be based only on a true psychology. Thus ethics and psychology are very closely related. The exercise of moral judgement requires psychological analysis of the total moral situation. Without the psychological knowledge, it is difficult to understand the moral situation and to act on moral principles. Ethics places moral ideals before the man, while psychology finds out ways to follow them in actual life.

PSYCHOLOGY AND LOGIC

Logic is the science of thought. In it the rules and criteria connected with concepts, judgments and inference are discussed.

Relation between Psychology and Logic

Psychology also studies conception, judgement and inferences etc., from the psychological stand point. It studies the process of reasoning as mental exploration. Thus it is clear that logic and psychology are closely related. Logic must be based on psychological facts. In psychological study, the adequancy of logic must be considered before arriving at some principles.

Difference between Psychology and Logic

Inspite of this intimate relation between logic and psychology, there are some fundamental differences between the two. Of these the most important are as follows :

(1) **Difference in nature :** Logic is a normative science whereas psychology is a positive science. Psychology tells us how we do think, logic tells us how we ought to think. Thus psychology explains the process of thinking whereas Logic explains the law of thinking.

(2) **Difference in field** : The field of psychology is wider than that of logic. Logic is concerned only with thought. It has no concern with affective and conative process. Psychology studies all types of mental processes and external activities.

(3) **Difference in stand point** : The stand point of logic is normative. The stand point of psychology is factual. Thus though helping each other, both logic and psychology are independent sciences.

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4

LEVELS OF CONSCIOUSNESS

Q. 26. **Write brief explanatory note on the following :— The unconsciousness.**

(*Patna 1962*; *Punjab 1960*; *Agra 1958 & 1959, Calcutta 1955*)

What is meant by the un-conscious in psychology and how is it related to consciousness ? How do we know about the existence of the un-conscious ?

(*Allahabad 1953, 1959; Punjab 1959*; *Lucknow 1957*; *Calcutta 1954*)

What is the difference between conscious and unconscious mind ? In what way do they influence each other ? (*Agra 1963, 1961, 1960*)

Proofs of un-conscious in every day life

Ans. Most of us know by our every day experience that our conscious mind is not the only field of the mental activities. There are many things which we forget and cannot remember even after trying, though after some time we again recall those things without making any effort. Some times one is sure that he has definitely seen a particular person somewhere else, but even after trying his best he fails to recall the past acquaintance though after some time he suddenly recognises him. The perception of certain things arouses some of our emotions. In the dreams, the past experiences are often recalled. There are many difficult questions which one fails to solve even after trying for hours and hours and at last leaves off the effort to solve it but after some time he suddenly arrives at their solution. Some times when we determine before sleep that we have to get up at 2 o'clock at night, we suddenly get up at the appropriate time, though our conscious mind was not working to that effect. These and many other experiences of our every day life indicate that besides the conscious mind there is some other mind as well which performs many important works in our life. This mind is not conscious, because we do not know it directly. It does many things which the conscious mind fails to do. This is the unconscious in man.

Proofs for the existence of un-conscious

In brief, the following are the main proofs advanced in psychology for the existence of un-conscious :—

(1) **Hypnotism :** In the hypnotic state the consciousness of the hypnotised person appears to be entirely different from his waking consciousness. As seen from outside he appears to be sleeping, but he is particularly conscious of the instructions of the hypnotiser. After he gets up from this sleep, he does not remember any thing about the hypnotic state of mind. All this proves that in the hypnotic state the man was on a level of consciousness which is other than the waking consciousness and outside its reach. This is the un-conscious in man.

(2) **Post hypnotic suggestions :** A still greater proof for the existence of un-conscious is that of post hypnotic suggestions. In the hypnotic state the hypnotiser directs the hypnotised person to perform a particular action at a particular time. As the man wakes up from his hypnotic state, he forgets everything regarding this direction, but as the appointed hour arrives he infallibly follows the directions. Bernheim has described an experiment in which he instructed a person to do an action at a definite time and the man involuntarily did the same. In America, in the inquiry of a famous murder case, it was found that the real murderer was not the person who shot, but a doctor who directed the person in the hypnotic state to shoot the particular man at an appointed hour. The man exactly followed the instructions, but he did not know anything about the murder either before or after the incident He did it only as an instrument in the hands of the doctor. Thus it is clear that he was controlled not by his conscious mind, ~~but by the consciousness which was controlled by the directions of the doctor in the hypnotic state.~~ This is the un-conscious ~~level of consciousness.~~

(3) **Proofs from mental abnormalities :** Freud and other psychoanalists and clinical psychologists have proved the existence of un-conscious by the analysis of mental abnormalities. In his '*New Introductory Lectures on Psycho-analysis,* Freud describes a lady who developed a strange habit. She used to overturn an inkpot of red ink at a white table cover, ring the bell to call the servant and stood at a corner of the table in such a way so that the red spots of the ink might be visible to others. This abnormal

action was almost daily repeated in a state of fit. After a detailed analysis of this abnormal behaviour, Freud disclosed that it was related with the first night of the lady's marital life. It happened that the husband failed to perform the usual sexual act and at last threw red ink on the bed sheet as a sign of bleeding so that his failure might not be disclosed to others. The lady kept this frustration in her un-conscious mind and used to satisfy it by this abnormal behaviour. The whole act was a repetition of the incident and the un-conscious effort was to show that everything was normally done. As this un-conscious cause was revealed to the lady i.e, as it was made conscious, her abnormal behaviour disappeared. The main technique which Freud adopted in curing his mental patients was to analyse the un-conscious causes and to bring them into consciousness.

(4) **Psycho-Pathologies of Everyday Life :** In his famous book *Psycho Pathologies of Every Day Life*, Freud has described the different types of slips *i. e.*, slips of pen, slips of tongue *etc.*, and other errors committed in daily life. Freud has tried to show by analysis that all these slips and errors have their causes rooted in the un-conscious. To give an example, a doctor wrote to a medicine manufacturing firm that he had applied their medicines to human beings and found them workable. This was a slip of pen because testing poison on human beings means murder and no murderer would like to reveal his crime by writing it to some one else. As a matter of fact the doctor wanted to write guinea pigs in place of human beings, but failed owing to slip of pen. Freud has shown that this slip was not un-caused, but had its cause in the un-conscious. When police enquired into the matter, it was found that the doctor has actually administered poison to human beings. It should be remembered here that it is not necessary that there should be some un-conscious cause behind every slip or error, but abnormal slips or errors as the one committed by the doctor, generally do have some powerful un-conscious cause behind them.

(5) **Free association :** Take a list of words and ask different persons to give words by free association. You will find that every-one responds differently, *e. g.*, if the given word is diamond, one will respond by saying ruby, other '*money*' while some other may say '*knife*'. The association of the word knife with diamond appears rather abnormal and strange. Generally such abnormal

associations have some unconcious cause by analysing which even thefts have been discovered by means of free association.

(6) **Dream analysis :** Though all the psychologists do not agree that all the dreams have unconscious causes, yet no one denies that un-conscious causes have an important role in the formation of dreams. Thus dreams point out to that un-conscious world in which the repressed desires and tendencies of man remain lying for the suitable association to manifest themselves.

(7) **Other proofs :** Besides the above mentioned proofs, many other proofs of the existence of unconscious can be found in our daily life, e. g., sudden forgetting of anything or sudden recall, unknown inspirations in art etc., solution of such difficult problems during sleep which could not be solved even while waking and finally sudden change in the behaviour of individuals etc.

Search for Unconscious

Before 18th century, the unconscious was not seriously discussed or explored. Persons did not accept even its existence. Most of the phenomena which are now assigned to un-conscious, were formerly thought to be due to supernatural beings. The history of the exploration of the nature of un-conscious in the West can be divided into two parts viz. from Leibnitz to Morton Prince and from Morton Prince to the psycho-analysts, like Freud etc., and the modern psychologists. Of these the second period is the most important. In the first period besides Leibnitz, Hartmann, Schopenhauer and Herbart, discussed about un-conscious. Dr. Morton Prince removed many false conceptions regarding the nature of unconscious. But it was Sigmund Freud, the father of psycho-analysis who has given the most comprehensive and scientific revelations regarding the un-conscious and its functions.

Freud's views regarding un-conscious

According to Freud just as only 1/10th part of an iceberg remains above the water, while the 9/10th is concealed below the water, similarly the conscious level of the man's mind is a very small part of the un-conscious. Thus according to Freud most of the human activities are motivated from the un-conscious and it is the un-conscious which should be explored to find out their causes. Freud devised many methods to explore the un-conscious. It was this technique which came to be known as psycho-analysis.

According to Freud our unconscious mind includes those experiences which were repressed, because of their being painful or contrary to social norms. Along with these the un-conscious consists of instinctive desires which were not allowed to be expressed on the conscious level. These tendencies are mostly sexual while few are concerned with the ego as well. According to Adler most of the un-conscious tendencies are concerned with the will to power.

Self Asserti

Jung's views regarding un-conscious

According to Jung, Freud's concept of unconscious is much limited. The un-conscious is so vast that it can never be fully described. What Freud has described as un-conscious, is only a small part of it which is formed in the life time of the individual. According to Jung we are born with a large part of un-conscious. Jung defines un-conscious as "the totality of psychic phenomena that lacks the quality of consciousness." Thus according to Jung there are two types of un-conscious: Personal and Collective. The personal un-conscious of Jung includes all that which Freud describes as Fore-conscious and Un-conscious. It includes all those experiences which have been forgotten or repressed.

Racial Un Conscious

The collective Un-conscious

The concept of collective un-conscious is Jung's contribution to psychology. It is inborn. It includes the archetypes of thousands of years of experience of human race. It includes all those reactions and tendencies which are characteristic of human race. In it there are all the instincts peculiar to man. There are no thoughts in it. It has rather the natural and primitive methods of thinking.

Importance of un-conscious in human life

Researches in the field of un-conscious have revealed that it is very important to human life. Most of our behaviour in everyday life has its sources in the un-conscious. Dreams are controlled by the un-conscious. In the day dreams, un-conscious plays a vital role. Mental abnormalities have their roots in the un-conscious. The causes of forgetting are in the un-conscious. Un-conscious plays an important part in our imagination. Many of man's slips and errors, *e. g* , as that of writing, working, and of physical and mental activities etc., are due to un-conscious causes. Thus all our instinctive tendencies which are not satisfied, remain in the un-conscious and come on the conscious level through dreams, day dreams, errors and through abnormal behaviour. These can be understood by the analysis of the unconscious and many mental abnormalities can be removed through this understanding. Many of the things learnt by us which appear to be forgotten remain in the un-conscious. Insight is a result of this depth of experience and it very much helps in further learning. It is due to this that some men have so much insight in art, literature or science etc. It is these un-conscious tendencies which motivate man in fine arts, because through them the repressed desires are satisfied.

The powers of un-conscious can be used for much good in human behaviour. Generally there is conflict between the conscious and the un-conscious tendencies which lead to much abnormal behaviour in man. But if un-conscious is controlled or its co-operation is achieved, much improvement can be made in our capacities and activities. By future researches in this field, more light will be thrown on the importance of un-conscious in human life and behaviour.

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Q. 27. **Give a complete picture of the mind as a conscious unconscious dynamic whole.** (*Agra 1960*)

Ans. In psychology the human mind was some times considered as a mere collection of many faculties. Thus according to faculty psychology, human mind has many powers and there are different centres of these powers in the mind. But gradually, researches in the field of mental activities discovered that the mind works as a whole. Researches concerning the localisation of brain functions showed that if a certain part of the mind receives injury, the other parts begin to do that function.

Mind is a whole

Mind is not only a collection, but a dynamic whole. It is changing. The mental powers and processes constantly develop owing to interaction with the environment. In the interpretation of mental behaviour, Freud has given the hypothesis of three elements : Id, Ego and Super-ego. Of these three the Id is in-born, but both Ego and Super-ego develop with in the environment.

Mind is dynamic

Previously it was thought that the entire mind is conscious. Activities and processes which are now considered due to unconscious were thought to be influenced by divine or super natural powers. From the psychological researches gradually the existence of

The unconscious in the mind

unconscious was proved and according to modern psychologists most of the mental processes in man are directed by his unconscious mind.

Mind as conscious unconscious

There are however, no water tight compartments between conscious and un-conscious levels of the mind. Both these are continuous and constantly interact upon each other. For example according to Freud ego is partly conscious and partly unconscious and thus mediates between these two levels of mental consciousness.

Mind is a conscious unconscious whole

Thus in modern psychology the mind is a conscious--unconscious dynamic whole. This is a basic concept whose outlines are gradually becoming more and more clear. The psychologists have achieved much in this field, but as more and more researches will be conducted regarding the mental behaviour, the outlines of this dynamic from of the mind will be more and more clear.

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Q. 28. **How would you distinguish between the conscious and the unconscious? Point out the mutual relationship between the Id, Ego and Super-ego.** (*Agra 1959*)

What is the difference between conscious and unconscious mind? In what way do they influence each other? (*Gujrat 1964*)

Conscious and unconscious level

Ans. Conscious and unconscious are two levels of consciousness. On the conscious level the object remains in the field of our attention. We know it directly and it is clear. On the other hand the unconscious impulses are below the threshold of consciousness and so do not fall within the field of our attention. Their existence is known indirectly through hypnosis and post hypnotic suggestions etc. The objects of unconscious are not known directly. As compared to the conscious level it is more complex, dynamic and instinctive. According to Freud, the conscious and the unconscious levels are opposed to each other. On the conscious level the desires are manifested. The unconscious is the level of repressed desires. It is irrational. According to Freud the unconscious is more important in mental life than the conscious level.

The unconscious level

In his books Freud has very much emphasized the role of un-conscious processes in human behaviour. According to Freud almost the entire mental life is directed from the un-conscious forces. The conscious level is a very small part of the un-conscious mind. The unconscious is the reservoir of the un-fulfilled motives. It stores repressed un-fulfilled infantile sexual desires. According to Freud the repressed desires do not disappear but go to the un-conscious of the man, and there await suitable chances for manifestation. Of these almost all the desires are sexual. It is these sexual desires which are the causes of much of the behaviour of human beings. Freud calls the universal aspect of these sexual desires with the name libido. Libido is the motivating force in human life.

ID .. inborn primitive mind fully Uncon.

The Id

Thus, according to Freud, man's un-conscious is the store house of instinctive impulses, frustrated desires and repressed feelings. It is not in the contact of the environment. Freud calls it Id. In the Id there are the directing forces of the man. Earlier Freud conceived it to be directed by the pleasure principle alone, but later on he accepted the existence of death instinct as well. Thus in the Id there are impulses connected both with life and death. These impulses assume the form of particular desires which are directed towards the environment. Thus they very much influence the conscious life of a man. In the Id most of these desires are sexual.— LIBIDO.

Mental Energy free of Desire.

The Ego

In the beginning Freud conceived Id as un-conscious and the ego as conscious, and explained their conflict in terms of the conflict of the un-conscious and conscious. Later on he modified his concept of the polarity of the conscious and the un-conscious. Earlier he thought that the conscious level is the level of the ego and on this level the unwanted desires are repressed and sent to the unconscious. But later on Freud found that many of his patients who were analysed, themselves did not know their resistances. Consciously they were presenting some sort of resistance while remembering their past experiences. This showed that the resistance is unconscious. Thus Freud concluded that in resistance and repression the ego is un-conscious. According to this modified view ego is party conscious and partly unconscious. In the conscious aspect it is in the contact of the environment. This contact with the environment is through the senses and the man responds to the environment through the muscles. The ego is also concerned with the inner mind of the man. This is the internal un-conscious. The contact of the ego with this un-conscious is proved through conscious pleasure and pain. According to Freud there is a constant conflict between this conscious and the un-couscious level. The ego mediates between both these words because it is partly conscious and partly un-conscious. In his famous book 'The Ego and the Id' Freud writes : "*The ego tries to mediate between the world and the Id, to make the Id comply with the world's demand and, by means of muscular activity, to accommodate the world to the Id's desires.*" Thus Id is always in search of pleasure. Id searches for pleasure blindly according to pleasure principle. But the Id must work through the ego and the ego follows the reality principle. In the beginning ego is weak and undeveloped. Hence it has to face many difficulties to fulfil Id's desire. It runs after the objects which are not found in the environment. When the ego has to leave his favourite object, it keeps its image in it and identifies itself with the object Thus by adopting the characteristics of the rejected objects, the ego gradually develops. When successfully developed the ego is systematic and well organised and adjusted to the environment. The Id is always primitive and un-organised.

The Super Ego

Super ego is called conscience in the ordinary sense. It is also known as ego ideal. In the analysis of the behaviour of his patients, Freud sometimes found much sense of guilt. Hence he had to postulate a super ego besides the Id and ego.

EGO
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Super Ego & Ego

Like the conscience this super ego tries to oppress ego by several rules and taboos. It tries to direct ego regarding what it has to do and what it has not to do. These directions are not based on practical needs. They are categorical imperatives.

There is another significant difference between the super ego and the ego. The super ego develops only in the human beings while the ego is found in some form in all the developed animals. This is because man has to pass through a very long period of infancy and his sexual power takes much time to arrive at its object in the adult sexual life. According to Freud, the ego develops in the life of the individual whereas the sources of the super ego can be traced from the primitive man. Thus man gets the super ego not only in his own life, but through traditions as well. Yet most of the part of the super ego develops anew in every child. Freud has traced its origin to the frustrated sexual desires in the child. According to Freud in the child there is a real sex impulse which searches for a person of different sex. According to this view the boy loves the mother and the girl loves the father. Not only this but the boy finds a rival in the father while the girl finds a rival in the mother. Thus the mind of the child is a field of terrible conflict which creates so many mental complexes. It is through these conflicts that the super ego develops.

The above views regarding the nature and interrelations of Id, ego and super ego are held as such according to Freud. Adler and Jung differ from Freud in certain aspects. For example whereas for Freud the ego follows the reality principles, according to Adler it does not do so. Jung has taken the libido of Freud in a very wide sense and identified it with the physical energy. Of these Freud's hypothesis has proved to be most helpful in the explanation of human behaviour, specially those of the abnormal persons.

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Q. 29. **What are the different aspects of consciousness ? Disscuss their relations to one another.** *(Calcutta 1955)*

Or

Point out clearly the different phases of mental life *(Bihar 1959)*

Ans. Mental life is a continuous life, but in it certain phases or forms can be observed. For example, everyone knows that mental life of the dream or sleep is different from the life of the waking stage. Even in the waking state itself man's mental life is not always of the same type. He distinctly sees some objects, but other objects he knows only indistinctly. Something he forgets, some he remembers and some other things are recalled after being forgotten for sometime. Analysing all these different forms of mental life the psychologists have admitted three levels of consciousness:

(1) Focus of consciousness.

(2) Margin of consciousness.

(3) Sub-consciousness.

In the focus of consciousness, everything can be seen clear and distinct from other objects. This is also called the field of attention. In it the speed of mental activity is represented. In it the focal consciousness is very clear. For example while seeing the moon, it is seen as distinct from the stars and planets.

Round about the focus of consciousness there is the margin of consciousness. In it the attention is not fixed. Hence it is also called field of in-attention. Its consciousness is known as marginal consciousness. In it things are seen as hazy and indistinct. For example while seeing the moon there is an in-distinct consciousness of the presence of stars as well. Stout has called this area as the sub-conscious.

Both the above mentioned levels of consciousness areincluded in the threshold of consciousness. Below the threshold of consciousness there is the sub-conscious. The existence of the sub-conscious is proved by many indirect testimonies. Hoffding and Freud called it un-conscious. It is the reservior of past experiences and impressions. Its consciousness is not direct. Hence it may be called anything distinct or in-distinct.

These levels of consciousness are not entirely separate from each other. As Stout has pointed out the different parts of our conscious life are not separated from each other by anything whose nature is different from consciousness. Hence this division of mental life is only a hypothesis for the interpretation of mental behaviour which helps in understanding the various mental processes.

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Q. 30. Describe the process of dreaming and examine the theory of Freud that dreams are wish-fulfilment. (*Punjab 1959, 1960*)

Dreams are wish-fulfilment

Ans. Dream is an everyday experience of human life and the man has always been curious to know its meaning. In modern times the psycho-analysis has done much work in the direction of the analysis of dreaming and many hypotheses have been formulated to explain dream. According to Freud dreams are wish-fulfilment. Most of our desires i. e., the anti-social desires or such desires the fulfilment of which is beyond our capacity cannot be satisfied in the waking state. For example, if a prisoner desires to get out of prison, he cannot do so. In such state his desires are not satisfied, but repressed. These repressed desires do not disappear but manifest themselves in the form of dreams.

Thus dreams are the means of the expression of our repressed desires. These repressed desires manifest themselves in the form of dreams, because at that time the waking intellect of the man does not hinder them. But still to avoid the social impressions in the mind in the form of censorship, the repressed desires express themselves in the form of dreams only in a changed form. According to Freud most of the desires expressed in the form of dreams are sexual by nature. The society does not allow their expression and so they have to seek the medium of dream to get expression. For example if a boy wants to meet a girl, to talk with her and to have romance, he cannot do so for fear of the society and represses this desire. But this desire does not leave his mind, it only goes to un-conscious. From the un-conscious it cannot manifest itself as it is because even while sleeping, the censorship does not allow him to do so. Just as a cinema firm, before it is exhibited, is examined by the censor of the Government and shown only after undergoing it, similarly the dream can manifest itself only after passing the censorship of the super ego.

Expression of Repressed and Forbidden desires

According to Jung it is the un conscious attitudes of the person towards the present difficulties and problems of life which manifest themselves in the form of dream. According to Woodworth it is not the un-conscious desire which manifests in the dream but the un-satisfied desire. According to Adler the desires expressing themselves in the dream are those of un-successful self assertion and related with the power motive. All these views agree that dreams are the manifestation of desires though they differ about the nature of these desires.

Expression of unconscious attitude towards life's problems

But as has been pointed out by Woodworth and others, all dreams are not wish-fulfilment. Some dreams are meaningless and some are due to physical causes, while some others express our reactions to particular things in life. Even in the wish-fulfilment dreams all desires can not be labeled as sexual or concerned with power or with the difficulties of life. Human psychology is a complex phenomenon and so is the dream. In some dreams several motives are confused with one another. Some dreams might be entirely self contradictory. Hence

All dreams are not wish-fulfilment

the view that all dreams are wish-fulfilment is one sided though not wrong

Dreams help in the expression of desires

Dreams have an important place in mental life. Repressed or restrained and frustrated desires remain in our un-conscious. This is the state of latent dreams. When these desires manifest themselves in the form of dreams, it is known as manifest dream. The mechanism of converting a latent dream into manifest dream is known as dream work. In it the desires are expressed in various ways. By the expression of repressed and frustrated desires, the person achieves mental peace.

Dream are helpful in sleep

Thus dreams are helpful in sleep. The common man says he cannot sleep because of dream. But Freud pointed out that we sleep because of dreams. Thus dreams help in the continuation of sleep. For example some times while sleeping, we feel very thirsty. In such condition had there been no dream we could not have slept. But what happens is that we dream of drinking water and go on sleeping atleast for some time with the help of the dream water. But when it fails to quench the thirst, we wake up and have to drink the real water. It is an example of the physical need. Mental desires and tendencies are also satisfied through dreams and the sleep continues. For example a student engrossed in the fear and worries of the examination dreams about it and continues to sleep. If these dreams were not there, the student could not sleep. Thus in the dreams our painful and pleasant desires get expression and we achieve mental peace. If these dreams of their expression were not there the same desires would express themselves in some abnormal behaviour and there may be many difficulties in the individual's adjustment. Dream is the most harmless way of the expression of desires. In it neither the time is wasted, as it is in the case of day dreams nor there is any harm as in the case of error nor any difficulty in adjustment as in the case of abnormal behaviour.

abnormalities detected through dreams

In psycho-analysis many of the abnormalities are discovered through the analysis of dreams. In this analysis the method of free association is very much used. In it the individual, without using his intellect associates ideas with his experiences of dream. This association shows the un conscious causes, by which mental abnormalities are detected.

For a detailed explanation of the process of dreaming, see the following questions and answers.

Q. 31. **Explain how night dreams differ from day dreams. Discuss the various theories about the interpretatiom of dreams.**

(*Allahabad 1952, 1955 & Rajasthan 1952, 1955*)

Describe Freud's interpretation of dream. What are the other theories of dream interpretation ?

(*Punjab 1961; Agra 1965, 1964, 1958; Ravishanker 1965*)

Write note on Dream. (*Bombay 1964*)

Generally speaking there are following differences between night dreams and day dreams :

(1) Night dreams are seen in night while the day dreams are seen in the day. To be more clear night dream are seen while sleeping and day dreams are seen while waking.

(2) Hence day dreams are more conscious than the night dreams. They involve more play of imagination.

(3) Day dreams are generally about the future. Night dreams may be connected with any time—past, present or future.

Different interpretations of dreams

Though man has always been inquisitive about the meaning of dreams, it was Aristotle who for the first time took dreams as a psychological problem. Before Aristotle, persons generally traced dreams to super-natural power. Aristotle for the first time emphasized that dream is a mental process. Since then psychologists have continually searched for the causes of dreams and tried to interpret them. The first systematic interpretation of dreams was presented by Sigmund Freud, physician-psychologist of Vienna. Various theories about the interpretation of dreams can be classified as follows :

(1) Physiological theory of dreams, (2) Psycho-neurological theory of dreams, (4) Psycho-analytical theory of dreams. Of these the last is the most important one. In it the main theory has been presented by Freud, though the theories of Adler and Jung are also worth mentioning. Now all these various theories regarding the inter-pretation of dreams will be systematically dealt with.

The physiological theory of dreams, as is clear from its name, admits internal and external stimuli as the causes of dreams. Man

(1) The Physiological theory of Dreams

cannot see dreams in the absence of these stimuli. But because man is never free from these stimuli, dreams are often seen. Thus dream is merely a response to the physical stimuli created in sleep. Besides this, it has neither any meaning nor use. In the words of Binze "All the facts as we see them, urge us to characterise the dream as a physical process, in all cases and in many cases definitely morbid." Besides Binze the most important advocates of the physiological theory include Mourie, Robert and Delege. According to Delege, dreams are caused by the sensory impressions collected in the brain due to the suppression in day time. Thus man's suppressed sensory impressions manifest themselves in dreams. According to Robert it is the unfulfilled thoughts of waking life and the sensory influences which create dream. About the utility of dreams the views of Robert are different from those of Binze. According to Robert the dreams make man's life more balanced. In the waking state a whole load of sensory influences is gathered on the brain. This load is lightened in the dream state. Thus dreams save brain from the load of the sensory impressions.

Evaluation of Physiological Interpretation

No one can deny the influence of physiological sensations in the process of dream, but physiological interpretation alone is not sufficient. The dream has a mental and psychological aspect as well. It is hence that something which happens in the childhood is seen in dreams even after twenty years, It is true that the physical sensations bear some influence on dream but due to psychological difference the same physical sensations can create different expressions in the dreams of different persons. For example, if a knife or some hard thing is placed on the neck of some sleeping person, a farmer may dream of the stroke of his sickle while a student of French History may dream of Gullotine. The physiological theory cannot explain this difference. The theory of Robert regarding the utility of dreams is more real than that of Binze etc. The dreams however; not only remove the load of the sensory impressions, but also manifest mental frustrations.

(2) Psycho-Neurological Interpretation

The psycho neurological theory of dreams has been presented by Harton. According to this theory, dream is an apperception of trial and error, i.e. the dreamer tries to understand and perceive the sensation, some times he succeeds in it some times does not succeed and some times partly succeeds. For example if some water is poured on the feet of a sleeping man or if the feet are un-covered in some winter night, the person can dream of walking on snow. Similarly a man sleeping in the running train may dream of hurricanes, owing to the physical sensations of the noise of the train. Thus according to Harton's theory, the man sees a dream in accordance with external stimuli working on his body. Some times when the man wakes up after hearing some terrible sound in his dream, he really finds some object falling outside. According to Harton it is the sound of this falling object which wakes the dreamer. Harton has explained his theory on the basis of psycho-neurology.

Evaluation of this theory

The theory of psycho-neurological interpretation of dream is also one sided because it fails to interpret many dreams. For example how can any one interpret the dreams related to the childhood memories on the basis of this theory ? It also does not explain why some dreams are meaningless. Inspite of these failings of this theory, no one can deny that there is an element of trial and error in dreams.

(3) Psycho-Analytic Interpretation

As he already been pointed out the best inter-pretation of dreams is the psycho-analytic theory. The psycho-analytic interpretation of dream was first presented by Sigmund Freud. Later on Adler and Jung presented interpretations different from those of Freud. Hence here it shall be relevant to discuss Freud's theory as the best specimen of psycho-analytic interpretation.

Freud's theory of Dreams

People say that we cannot sleep because we dream, Freud tried to prove that we sleep because we dream. Thus according to Freud dreams are not impediments in sleep, but rather a help to it. All dreams, according to him are wish-fulfilment. This theory of dreams has been elaborately discussed by Freud in his famous book, 'The interpretation of Dreams'. The general outline of Freud's theory of dream is as follows :

(1) Dreams are wish-fulfilment : Freud emphasized that man's desires which are not satisfied in the external world or which are repressed due to some causes, do not get extinguished, but go to the un-conscious and from there try to manifest themselves on suitable occasions. The manifestation of dreams is one of the suitable means of the expression of these un-conscious desires.

It can be questioned here that if dreams are wish-fulfilment, why does one see painful and traumatic dreams ? Freud has explained this difficulty by pointing out that these dreams are the distorted forms of the latent content of the dreamer. For example, if a young man dreams that a lady severely gets hurt and the lady resembles his mother, Freud will interpret the dream by pointing out that the young man actually desires that his mother should get hurt. Every young man would revolt against this interpretation. But according to Freud, in Man's mind there are mutually conflicting desires, where there is love there is hate, where there is a wish fár life, there is a desire for death as well. But some time in the state of traumatic neurosis the dreams often stop in the state of worry and appear to be un-successful in the fulfilment of desire. Hence later on Freud modified his theory and called the dreams "Attempted wish-fulfilment" and not wish-fulfilment itself. Thus later on Freud divided dreams into three classes—(A) Wish Dreams (B) Anxiety Dreams and (C) Punishment.

(2) **The importance of sexual desires in Dreams**—According to Freud the most common, most dominant and most frustrated desires of man are sexual desires. On the one hand the man wants to satisfy his sexual impulses, while on the other hand he also wants to preserve the social and moral norms. Thus there are two conflicting tendencies in man's mind—Id and Ego. Id is the reservoir of frustrated desires. It seeks the satisfaction of sexual desires. The super ego is the representative of social morality and tries to control sexual impulses. This is the dream censor to escape which the latent dream manifests itself in different forms.

(3) **Dream Work**— The latent content of the dream is the frustrated desire. Due to censorship this desire cannot manifest it-self in the dream in its real form. The censorship resists the dream wish due to which it assumes distorted forms. Thus dream work is the process by which the latent content becomes manifest content of the dream. As has already been pointed out the latent dream cannot manifest itself in its real form due to censor and manifests in a distorted form. This work is done with the help of the following five mechanisms:—

(*i*) *Condensation*— In the condensation much of the part of the latent dreams disappears before manifesting. Many accidents assume the form of symbols and many images merge together and become one. For example, a man may dream of a person who has characteristics of many of his acquaintences all in one.

(*ii*) *Displacement*— In this mechanism the primary things in the latent dream become secondary in manifest dream and the secondary become primary. Hence the censorship fails to understand the real desires.

(*iii*) *Dramatisation*—In this mechanism the abstract desires of the latent content manifest themselves in concrete form in the dream. This dramatisation is not in the real form, but in changed form. Thus in dreams the feeling and emotions etc., manifest in concrete form.

(*iv*) *Symbolisation*— In his book on dreams, Freud has given a detailed description of different symbols of various sexual organs and tendencies. For example a tree in a dream may symbolize a male organ. In this form the censorship has no objection in it. Hence frustrated desires manifest themselves in the form of symbols.

(*v*) *Secondary Elaboration*— Man wants to see a continuity and meaningfulness in everything. Hence while awaking after dream he elaborates the dream here and there and tries to make it more logical and meaningful. This mechanism is known as secondary elaboration. This conceals the real form of the dream.

(4) **Dream Interpretation**— In the above mentioned mechanism of dream, Freud has tried to analyse their meaning with the help of free association and analysis of symbols. In free association the dreamer freely associates his id as with the things persons and places seen in dreams. In such association whatever idea occurs earlier is accepted to be true. For example, if by association the idea of the mother comes along with the lady seen in the dream, one should admit that the lady represents his mother, however inconceivable this idea might appear. Thus the dreamer understands the real meaning of the dream by freely associating without any control of the intellect. As has already been pointed out, Freud has taken most of the things seen in dreams in the form of symbols. These symbols have been taken from the folk songs, scriptures, mythologies etc. Some of the examples of these symbols are as follows; the journey represents death, water symbolizes birth, king symbolizes father, queen is a symbol for mother, cloth is a symbol for nudity and climbing a hill or a ladder is a symbol for sexual intercourse. These symbols appear to be very strange, but this is significant to note that Freud has successfully interpreted many dreams on the basis of these symbols.

According to Adler the most important element in dreams are the mental conflicts and repressions. Where as Freud has emphasized the sexual impulse, Adler emphasizes the impulse of self assertion. According to Adler in dream it is not the sexual desire, but the impulse of self assertion which is fulfilled. Dreams express man's style of life which is adopted by every person in first few years of his childhood. Another significant difference between different interpretations of dreams, as given by Freud and Adler is that whereas according to Freud dreams are connected with man's past Adler conceived them as connected with man's future. According to Adler the man rehearses the role of his future life in his dream. For example a man was worried about his future marriage. He dreamt that he was stopped between the boundaries of two countries and threatened to be imprisoned.

Adler's Interpretation

According to Jung there is a general life energy in man which is manifested in his different activities. Thus dreams are not the manifestation of some one impulse. It is the general life energy which assumes the form of different impulses and manifests in the dream. Like Freud, Jung has admitted the importance of un-conscious, but whereas Freud has emphasized, the individual un-conscious, Jung considers it as secondary and emphasises collective or racial unconscious. Another important difference between the views of Freud and Jung is that whereas according to Freud repression is necessary for dreams according to Jung on the other hand dreams are possible even without repression. For Jung dream is a common mental process in which the archetypes of racial characteristics, present in the collective un-conscious, are manifested. According to Freud and Adler dreams are connected with past and future respectively while according to Jung's they are connected with the present. Thus according to Jungs theory the dreams express man's unconscious attitude towards his present problems. For example, Jung has interpreted a certain dream—the dream was of a bachelor of a university who developed psychoneurosis due to un-employment. The dream was like this-"I was climbing a ladder with my mother and sister. As soon as we reached the highest ladder I was told that my sister is about to give birth to a child." Jung interpreted this dream by pointing out that the mother symbolizes the sense of duty, the sister represents the true love and the child symbolizes rebirth. Thus all

Jung's Interpretation

the dreams represent the young man's mode of adjustment to the present life.

As has already been pointed out Freud's theory is the most important among the psycho-analytic theories regarding the interpretation of dream. Hence while critisizing psycho-analytic theory most of the criticism has been leveled against Freud's theory. Of these the most important objections are as follows :—

Criticism of Freud's theory

(*1*) *Excessive emphasis on un-conscious*—It has been pointed out by Woodworth that Freud has laid too much emphasis on the role of un-conscious in the dream. Most of the desires which are ignored and rejected still remain conscious. It is not true that all the frustrated desires are un-conscious. The desires expressed in dreams are not so much un-conscious, as frustrated and the frustrated desires can be even absolutely conscious.

(2) Too much emphasis on sex impulse—It has been pointed out by many that Freud has laid too much emphasis on the role of sexual impulse in the dream. On this point the views of Adler and Jung are as much true as that of Freud. Again some dreams are meaningless while some others are more response to physical stimuli. Hence it is clear that only a small number of dreams can be levelled as sexual.

(*3*) *The Interpretation of normal from abnormal*—Mcdougal has pointed out against Freud's interpretation of dreams that in it the former has been explained by abnormal. Freud's formula regarding the interpretation of dreams may be helpful in the understanding of some dreams specially those of neurotics. But there is no sufficient ground to apply this formula on every dream. In fact Freud's interpretation of dreams was mostly used at an abnormal and the theory of dreams was built up on the data supplied by his patients. Freud tried to interpret every normal dream by his theory. It is more scientific to interpret abnormal by the normal than the vice versa.

Inspite of all the objections against Freudian hypothesis, it should be remembered that Freud's interpretation proves to be most successful, and useful in the interpretation of many dreams. For example proofs have been found regarding the manifestation of the repressed desires in dreams, wish fulfilment in dreams, symbols in dreams and the dream mechanism etc. In fact freud's interpretation is not so much wrong as limited and one sided. It cannot explain all the dreams. Similarly the views of Adler and Jung are equally one sided. It should be remembered in this connection that of all the theories of these three psychologists, Freud's interpretation of dreams was definitely most successful.

Conclusion

In fact all the various theories regarding the dream interpretation are one sided. Here one should admit a dyamic and integral stand point. No common theory can be built up for the interpretation of all the dreams. Dream is a complex process which may have both physiological and psychological aspects, which may be connected with any of the time past, present or future; in which sex, hatred, self assertion, any of the conscious or un-conscious impulse may work.

Hence Woodworth has rightly said, "No interpretation really conveys the dream. Speaking for myself, I have grave doubts of the validity of any dream interpretation. What underlines a given dream is certainly much more than what finds place in any interpretation."

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Q. 32. Write short note on Day Dreaming.
(*Gorakhpur 1962*; *Gujrat 1959*; *Punjab 1950*; *Rajasthan 1964*; *Alld. 1958, 1956*; *Agra 1955, 1954*)

Discuss the nature of day dreaming. What are the uses and abuses of day dreaming ? (*Karnatak 1965*)

What is day dream ?

Ans. Day dream is a type of imagination. This dream is seen while waking. Hence the title day dream. According to Woodworth, "A day dream typically looks towards the future, as if planning for possible action, only it is not a serious plan, nor necessarily a plan which could work in real life but it is merely a plan of imagination." Thus the schemes planned in day dream are merely imaginary and not workable. Though it may bring mental satisfaction it does not lead to any practical results. The tendency to day dream is mostly found among introverted persons.

Kinds of day dreams

According to Adler, the day dreamer is himself the hero in day dreams. In it the dream satisfies his desires of self assertion. This satisfaction may be attained either by suffering or by conquering over the difficulties. With this distinction one finds two types of day dreams viz, 1. Suffering hero day dream and 2. Conquering Hero day dream. To illustrate suppose a student has failed in the examination and severely reprimanded by his parents. This student is introverted and has a weak will. Hence instead of actually working hard in future he only imagines his success and gets lost in day dreams. In day dreams he may imagine that he has been involved in some accident or that he has run away from his home and his parents are feeling sorry for their behaviour towards him. Thus the dreamer imagines himself as a suffering hero. On another occasion or a different person may imagine himself as passing the examination in first division and there by getting admiration from his parents. In this example the dreamer is a conquering hero.

Thus day dreams leads to temporary relief from anxiety and frustration and consequent lessening of tension. It is, therefore, useful in this sense when indulged moderately. But if the individual occasionally indulges in it and makes it a substitute for actual work it leads to maladjustment and frustration.

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5

THE NERVOUS SYSTEM

Q. 33. **Describe in broad outline the nervous system considered as a stimulus—response mechanism.** (*Poona 1960*)

Or

Describe the brain and its functions. (*Poona 1959*)

Give a brief account of the function of the central nervous system. (*Benaras 1964*; *Agra 1963*; *Alld. 1989*; *Lucknow 1958*; *Gorakhpur 1964*; *Muzaffarpur 1964*; *Gujrat 1964*)

Describe the stimulus response mechanism. How does it help in explaining human behaviour ? (*Mysore 1962*)

Ans. Response Mechanism is that system which helps the organism to adjust itself to the environment and controls its activities. Thus it is due to response mechanism that one finds selection, adjustment, combination etc., in human behaviour. The response mechanism in animals is divided into the following parts:

(*1*) *Receptors* : Cells of the eyes, nose, ears, tongue and skin etc., are receptors. They receive the sensations. Human behaviour begins through the receptors. It is only after the receptors have received the sensation that the response in the organism begins.

(*2*) *Effectors* : Effectors include muscles and glands. They make the actual response possible.

(3) *Nervous system* : Nervous system controls the response. It joins the receptors and motor-organs.

Human organism is affected by the environment. The sun, heat, cold etc., affect our body. The body responds to external stimuli. This response changes the external environment. When something pinches, the pinched one feels a sensation. The sensation is received by the nervous system through which the receptors and motor organs are connected and the muscles of the hand re-act immediately so that the pinching object is removed. Thus the receptors receive stimuli from the environment and the motor organs change the environment by response. The human organism has innumerable receptor-cells. In the eye alone there are lakhs of cells. Similarly the receptor organs e. g. muscles etc., have innumerable muscle-fibres. The nerves connect the receptors and the muscles and thus make response possible. These nerves carry the message from the receptors to the muscles. This communication has a speed of 75 Yds., a second. This response takes a very small portion of a second. In times of emergency it becomes even more rapid.

NERVOUS SYSTEM

Nerve is the most important part of response mechanism. It joins the receptors and the effectors. The nervous system is divided into two parts: (1) Central nervous system and (2) Autonomic nervous system. In the human organism there is a whole net work of nerves and this net work presents the structure of the nervous system.

CENTRAL NERVOUS SYSTEM

The central nervous system is an important part of the response mechanism. The central nervous system is divided into two parts: (1) The Spinal cord and (2) The Brain.

The spinal cord is situated in the back bone. It is a white matter having a form as that of a rope. Its upper part is made of white matter while the inner part is that of grey matter. The spinal cord has two types of nerves : (1) Sensory or afferent and (2) Motor or efferent. These nerves join the receptor and the motor organ. The sensory nerves carry the muscles from the receptor to the centre of the nervous system. The motor nerves carry the message from the nervous system to the muscles. This coming and going of the messages is through the grey matter of the spinal cord. The grey matter forms 50% of the spinal cord and the rest is covered by the white matter. The path ways of spinal cord are situated just benath the skin. Its middle part has cell bodies and the nerve path-ways are in its peripheral portion. In the white matter there are tracts up-side and down-side. In the grey matter there are associative nerves.

The spinal cord controls the reflex action. In the the reflex-action the sensory nerves carry the sensation to the brain 'and from the brain the motor nerves carry the message to the muscles. This reaction is so rapid that it takes almost no time. Besides controlling the reflex action, the spinal cord also joins the external organs with the brain. In it 31 pairs of nerves come from out side. Every pair has a sensory and a motor nerve. These nerves join the spinal cord with the external parts of the body. Thus the external parts *viz*, hands, feet etc. are governed by the spinal cord. It controls all the learned activities like writing, reading, cycling, typing, walking, running and talking etc. The brain has not to interfere in all these activities.

BRAIN

Besides the spinal cord, there is yet another important part of the central nervous system called the brain. The brain is divided into the following three parts :—

(1) Cerebrum, (2) Cerebellum and (3) Mid brain or Medulla oblongata or Brain Stem.

(1) Cerebrum

The cerebrum is bigger than the cerebellum or brain stem. Hence it is known as cerebrum or big brain. It is extended from the eye brows upto the centre of the skull. Thus it is the foremost part of the skull. It is also the driest part of the brain. In it the arrangement of the white and the grey matter is opposite to that of the spinal cord. Its upper part is made up of grey matter while the inner is made of white matter. As it has been said earlier, in the spinal cord the upper part is made of white matter while the inner part is made of grey matter. The upper part of grey matter in the cerebrum is known as the cortex. Near it there are groups of nerve cells which form the sensory area and motor area of the brain. The white matter forms the nerve-fibres. The grey matter forms the nerve cells.

In cerebrum there are two hemispheres, separated by a fissure. These hemispheres are called the right hemisphere and the left hemisphere. The right hemisphere is mostly connected with the left part of the body. The left hemisphere is mostly connected with the right part of it. Thus there is a cross relation between the hemispheres of the cerebrum and the parts of the body. On the surface of the cerebrum there are small convolutions or gyres. These convolutions are separated by fissures. These fissures are deep in the matter of the cerebrum. But they do not divide the brain, because under the surface its various parts are linked with each other. There is a fissure in the centre of cerebrum which is known as the central sulcus. It is also called fissure of Rolando. Besides this there is a fissure in the cerebrum vertically. It is called the fissure of Silvius or Lateral Sulcus.

The big parts of the cerebrum are known as lobes. The lobes are inter-connected. The cerebrum is divided into four lobes. These lobes are as follows :

(*1*) *Frontal Lobe* : Frontal lobe is extended from the fissure of lateral sulcus to the fissure of central sulcus.

(*2*) *Parietal Lobe* : Parietal lobe is extended from the fissure of central sulcus to the hind part of the head.

(*3*) *Occipital Lobe* : This lobe is in the hind part of the head.

(*4*) *Temporal Lobe* : Temporal lobe is the portion beneath the brain.

These lobes of the brain are linked by sensory projection fibres. These fibres enter from one lobe to another.

(2) Mid Brain

The second part of the brain is the brain stem or medulla oblongata. It is through this part that sensations sent to the spinal cord reach the brain and the responses from the brain reach the lower part of the spinal cord. The work of the spinal cord has already been described earlier.

(3) Cerebellum

The cerebellum is the third part of the brain. It is situated in the portion behind cerebrum. It is divided into two lobes. Inside these lobes there are white nerve fibres which are covered by a thin layer of the grey cells. There are some fissures in this part which are deeper than those of the cerebrum. The cerebrum controls the kinaesthetic movements and co-ordinates the muscular activities.

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Q. 34. **Write a short note on—Autonomous Nervous system.**
(*Agra 1955*; *Lucknow 1957*; *Bombay 1958*)

Write short note on Sympathetic nervous system.
(*Karnatak 1965)*

AUTONOMIC NERVOUS SYSTEM is an important part of the nervous system in the human organism. It is known as autonomic nervous system, because it is independent of the central nervous system in its action. There is no interference in its activities from the central nervous system. For example, in the emotional state there are many changes in the body which are governed by autonomic nervous system and in which the central nervous system takes no part. But this does not mean that the autonomic nervous system has no relation with the central nervous system. As a matter of fact the spinal cord which is the important part of the central nervous system has also an important role in the autonomic nervous system. Hence it can be said to be autonomous only in the sense that it controls and governs all those activities in which the brain has nothing to do. The activities of this system cannot be checked even with efforts. It goes on acting independently.

The main function of the autonomic nervous system is the adjustment between the activities of the different parts of the body. Many of its nerves beginning from the brain and the spinal cord reach the stomach and nerves carrying blood. These nerves control the activities of the internal and external muscles. It is the autonomic nervous system which controls the activity of the glands, the stomach and the blood vessels. It is this system which controls the activity of the different parts of the body, e. g. lungs, heart, liver, spleen, rectum, sweat glands etc. Thus as a matter of fact this is a motor nervous system. Many of the ganglia of its nerves, cells and also the synapses are situated outside the central nervous system and central nervous system takes no part in their activities.

The left part of the autonomic nervous system is divided into three parts as follows :

(1) Cranial (2) Thoraco Lumber and (3) Sacrel. The thoraco lumber is the part from the brain stem to sacrel. The reason to call it thoraco lumber is that the nerves of this part reach the thorax, beginning from the spinal-cord. Below thoraco lumber and in the lowest part of the spinal cord, is the sacrel.

The autonomic nerves and the different parts of the body are connected up to eyes, salivary glands, mucous membrane, blood vessels, heart, liver, stomach, pancreas, intestines, adrenals, kidneys, bladder, colon, rectum and genital areas. Besides these are also extended upto sweat glands and cutaneous vessels. The ganglia and spinal cord are linked by those nerve fibres which reach the ganglia from the spinal cord. In a ganglia there are 22 sympathetic ganglion. The sympathetic ganglion are on the upper surface of the white matter, known as myline. The axon fibres beginning from the ganglia return again to the nerves of the spinal cord.

The autonomic nervous system is divided into two parts : (1) Sympathetic nervous system and (2) Para-sympathetic nervous system. The activities of both these parts are opposite to each other.

Sympathetic Nervous System

The sympathetic nervous system prepares the body for emergency. It saves the body in the time of emergency. It also works in emotional states. Due to its activity the retina of the eye acts at the time of emergency and the blood vessels of the stomach send more blood to the muscles, and brain instead of sending blood to the stomach. As a result of this the digestion stops and so also hunger. The muscles and the brain begin to work rapidly as the intestines stop working and the gastric glands stop giving secretions. The heart beats with a speed since it has to pump blood rapidly. The adrenal glands execrate adrenalin. As a result of adrenalin the blood sugar is increased in the blood resulting into increase of strength in man. Excitement results in the destruction of many cells and the rate of respiration is increased. The water metabolism drops down resulting in dryness in throat and mouth. All these activities can be seen at the time of quarrel or fighting, anger or fear. In the emotional state, the galvanic response capacity also becomes less.

Para-sympathetic Nervous system

Another part of the autonomic nerves is para-sympathetic nervous system. It is the link with cranial and sacrel. The main work of para-sympathetic system is anabolism. It includes the concentration of the energy of the body and strengthenning of the different parts of the body by this concentration. As the activity of the sympathetic nervous system decreases the speed of the heart beat is lessened and the blood pressure also becomes less. The activity of the salivary glands increases which helps in digestion, resulting in increase in the weight of body. The pupils of the eyes contract resulting into relaxation of the eyes. The para-sympathetic nervous system controls the activity of the sacrel divison It keeps the bladder, the colon and the rectum healthy and helps in execrating the different kinds of useless and poisonous matter from the body.

The sympathetic and para-sympathetic nervous system differ from each other as explained below :—

(1) In the sympathetic nervous system the ganglion are in the spinal cord near those internal organs of the body, which they

excite. But in the para-sympathetic nervous system the gangalion are not in the spinal cord but near bodily organs.

(2) In the sympathetic nervous system the whole system works together, but in the para-sympathetic nervous system the different parts are independent.

But this does not mean that the sympathetic and the para-sympathetic nervous systems are absolutely opposite to each other and they are not related. As a matter of fact they co-operate inspite of th se distinctions. According to Morgan these systems do not work independent of each other, but co-operate in different proportion according to different situations, *e. g.*, if the organism has to struggle with the environment, the sympathetic system works more and the para-sympathetic system is less active. In the adjustment with environment the para-sympathetic system has to work more while the sympathetic system works less. Thus due to the co-operation of the sympathetic and para-sympathetic systems, there is a balance in the body in both the states of work and rest.

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Q. 35. **Describe briefly the function of the endocrine glands.**
(*Gorakhpur 1960, 1962*; *Agra 1954*)

Ans. Ductless glands, as is clear from the name, send their secretion directly in the blood without the help of ducts. Their secretion is known as hormones. It has a very far reaching influence on the body and personality. The main ductless glands are pineal, thyroid, adrenal and sex glands. Besides these the parathyroid, thymus and other glands also exert an important influence on the physical processes. The contribution of the main ductless gland in the response mechanism and personality of man will be clear from their description.

(*1*) *Pineal Gland*—Pineal gland is konwn as a master gland, because it controls other glands. Its posterior lobe secretes such hormones which keep the water metabolism and blood pressure of the body in balance. The hormones of this frontal lobes keep the thyroid, sex and external glands etc., under control and make for their development and efficiency.

(*2*) *Thyroid Gland*—The hormones secreted from the thyroid gland are known as thyroxine. Thyroxine continues the chemical processes in the body like metabolism and oxidation. Its increase increases the speed of metabolism. Its decrease decreases the speed of metabolism and less oxygen is used.

(*3*) *Adrenal Glands*—Adrenal gland has two parts. The external part is known as cortex while the internal part is known as medulla. The cortex secretes cortin. The medulla secretes the hormones known as adrenin. These hormones are very powerful. Even the presence of the small quantities of them in the blood results into fast heart beat, high blood pressure, postponement of the activity of stomach and intestines, broadening of the air paths, discharge of sugar from liver, absence of fatigue in the muscles, profuse sweating, expansion of the pupil of the eye etc. These changes can be seen in the emotional state of the organism which organises its power to face an emergeney.

Cortin has far reaching influence on muscles and sexual functions. It is due to this that the body uses sodium, potassium and sugar. It keeps the body fit and hence it is absolutely necessary for the body. In its absence a disease known as Addison's disease, develops in the body. The symptoms of this disease are weakness lack of interest in sexual functions, slow metabolism, lack of sleep, blackening of the skin, lack of the capacity to bear heat and cold etc. All these symptoms disappear by giving cortin to the body. The increase in cortin results in excessive development of the manly qualities. Its excess in the female leads to the disappearance of rounded contoures, the voice becomes harsh and hairs are observed on the face.

(*4*) *Sex Glands* : Sex glands create primary sense organs, female ovary, male testes, ovum and spermetozoon. Besides these the sex glands also create some internal hormones. Of these some are present in both male and female. In the males these hormones lead to the manly qualities while in the female they develop feminine qualities. It is due to their influence that the sex organs develop at the stage of puberty. Again it is due to these that the sexual characterstics of males and females as the development of mammary glands in the female and beard and moustaches in males occurs. In their absence these sexual characterstics do not develop and both males and females remain neutral. The hormones of the sexual glands are present in childhood, and develop when one reaches adolescence. They control the female activities connected with reproduction such as menstrual cycle, pregnancy etc.

The above mentioned importance of the ductless glands in response mechanism and personality has been discovered through various methods. The physiologists remove some particular gland from the body of the animal and observe the influence of its absence. The chemists analyse different hormones, and prepare them artificially in their laboratory. Some hormones are taken out from the bodies of different animal by killing them. The physicians use these hormones to remove various types of disturbance.

◆

Q. 36. **What is the difference structurally and functionally between white and grey matter of the nervous system ? Explain with the help of necessary diagrams.** (*Agra 1959*)

Ans. If the brain is cut transversally or horizontally two types of matter are observed in it–white matter and grey matter.

If the tissue in the brain is observed by applying some colour with the help of microscope, innumerable nerve fibres are observed with white matter which go in various directions. In the grey matter there are cells with dendrites and axons entering and finishing. In the lower part of the spinal cord and brain, there is grey matter in the lower senses. The 50% part of the spinal cord and brain is constituted by white matter and the rest by grey matter. In the white matter there are nerve fibres which can be clearly distinguished from the grey matter. Even the eye can distinguish as to which parts of the nervous system are constituted of nerve fibres and which by nerve cells. The collection of nerve cells is known as ganglia. The collection of nerve fibres is known as tracts. The structure of the cerebrum and the cerebellum is of the same type.

Brain Fibres

In the brain three type of fibres are observed : (1) Commisural fibres (2) Association fibres and (3) Projection fibres.

(*1*) *Commisural Fibres* : The Commisural fibres extend in one hemisphere of the brain by the white sheet and reach another hemisphere. Thus they assume the from of corpus collosum. It is this corpus collosum, as has been pointed out earlier, which establishes relation between both the hemispheres of the brain.

(2) *Association Fibres* : The association fibres establish contact between the two parts of cortex. Previously it was held that different activities of the cortex are integrated by association

fibres. But it has been discovered that the association fibres do not extend lengthwise. Thus now it is established that the connection between the various parts of the cortex is not established by association fibres.

(3) *Projection Fibres* : These are the most important fibres. It is through these that the muscles go out of the cortex and come in the cortex. Such projection fibres are of two types : (A) Afferent projection fibres, which send impulses to cortex from thalamus and sub-cortical centre. (B) Efferent fibres which proceed from cortex and reach to sub-cortical centres. They meet at basal ganglia, thalamus or spinal cord and carry the message to them.

Grey Matter

Most of the parts of the grey matter are found on the upper surface of the brain. This part is known as cortex. Cortex extends round about the fissures. In the brain there are even bigger particles of grey matter. The inner brain is entirely made up of grey matter. There is grey matter also in the depths and fissures of the brain.

If the grey matter is seen with the help of microscope, it shows nerve cells, dendrites and axons. The total number of the nerve cells in the cortex of the cerebrum is estimated as 14,000,000,000. Of these many are very small and un-developed which are not used and kept safe in the brain. Alongwith nerve cells there are dendrites, axons and cell bodies. While seen with the microscope they appear to be innumerable.

It is in the grey part of the brain that all the conscious centres and fields of consciousness of the brain are found. Thinking, reasoning, imagination and other intellectual functions are found in the grey part. In it are the areas of sensations, associations and motor areas. In it there is the field of physical activities and tactual sensations. If this field is injured, the sensations are not felt in hands, feet and skin. Thus, the consciousness of the man very much depends on the grey part of the brain.

Importance of Grey Matter

The importance of grey matter is in brief, as follows :

(1) The conscious fields and the conscious centres of the brain are situated in the grey matter. Thus all the intellectual and conscious functions are in it.

(2) The motor areas of the brain are in the grey part. Hence it is from this part that the motor functions begin.

(3) The association areas of the brain are situated in the grey matter. Hence it is the grey matter which keeps the different activities of the brain related to one another.

(4) The physiological activities and the tactual sensations are directed from the grey matter because their areas are situated in it.

Importance of White Matter

The importance of the white matter in the structure of the brain is as follows :

(1) The white matter helps in separating the nerve fibres from the nerve cells because on the nerve fibres there is a white sheath of myelin.

(2) The white matter helps in connecting most of the subtle fibres and keeping them in the sheath.

(3) The white matter keeps the different parts of the cortex related.

(4) The white matter connects the two spheres of the brain.

(5) The white matter keeps corpus collosum.

(6) The white matter sends sensation from the thalamus or sub-cortical centres to the cortex, and connects it with ganglia and spinal cord.

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Q. 37. **Describe the distinctive functions of the Central Nervous system.** (*Bombay 1950; Gujrat 1960*)

Describe the structure and reflective functions of the different parts of the Central Nervous system.

(*Bombay 1953; Gujrat 1960*)

Give a brief account of the functions of the central nervous system. (*Agra 1958; Allahabad 1959 & Lucknow 1958*)

Give a brief but complete description of cerebro-spinal nervous system.

(*Agra 1958, 1959*)

Write short note on (a) Cerebellum (b) Medula oblongata.

(*Karnatak 1965*)

Ans. The central nervous system is the most important part of the response mechanism of man. In the whole body of man there is a net work of nerves. This net work presents the general scheme of the central nervous system.

Sensory and Motor Nerves

The nerves of the central nervous system reach every sense organ and muscle. These nerves are connected with the central ganglia of the spinal cord. All the nerves meet at this centre. The nerves carrying the message from the receptors to the centre are known as sensory nerves. The nerves carrying the message from the centre to the muscles are known as motor nerves. The response mechanism works by systematic working of the sensory and the motor nerves. Besides these two types of nerves there are nerves connecting them.

Nerve centres

Thus various responses of the human body function through nerve centres. These nerve centres are very complex. When seen with the help of a microscope, many subtle fibres are seen in other nerves. These fibres are very thin but reach from the receptor to the nerve centre and from the nerve centre to the muscle. Thus some of these are even some yards in length. The complexity of the nerve centre can be imagined from the fact that the optic nerve alone has about 4,00,000 fibres. A nerve is made up of a bundle of fibres. These fibres are connected outside the nerve centre, but again meet in the nerve centre. It is not necessary that one fibre should carry one measage, some times an out going fibre takes several measages. When the nerves are broken and the muscles are un-connected with the centres, these fibres become useless.

Axons and Dendrites

The nervous system is made up of nerves. The nervous system and the nerve cells are connected through the blood vessels. These nerves also include their branches. These branches are of two types—Axons and Dendrites. Axon is one and alone while dendrites are many. Axons are several feet long. The dendrites extend like the small branches of a tree. The axon is covered by an insulating substance. The axons of the sensory nerves are sensory while axons of the motor nerves are motor. A motor axon extends from the brain or spinal cord to the muscle or gland. The sensory axon extends from the nerve cells to the brain. Thus these axons connect the receptors and the nerve centres.

Synapse

The connection between the two cells is known as synapse. In this synapse an axon of a nerve finishes in fine branches and these fine branches get connected with the dendrites of some other nerves. Thus a synapse is formed, when the axons of a nerve get connected with the dendrites of another nerve, and a sensation is carried from one to another. The axon carries the sensation and the dendrites receive it. Thus the message is communicated from the axon of a nerve to the dendrite of another nerve. This message is in the form of nerve impulse which is like an electro-chemical current found in the nerve. The force of the reaction of any muscle depend on the total number of these electro-chemical current per second. As it increases and decreases the reaction of the muscles also increases and decreases stimultaneously.

There are two parts of the central nervous system : (A) Spinal cord and (B) Brain.

The Spinal Cord

The spinal cord is situated in the back bone of the human structure. It is a white soft substance like a rope. Its upper surface is made up of white matter and is thick. There are two types of nerves in the spinal cord : (1) sensory or afferent nerves and (2) motor or efferent nerves. These nerves connect the receptors and the nerve centres. The sensory nerves carry the sensation from the receptor to the nerve centre. The motor nerves carry the message from the nerve centre to the muscle. The coming and going of the sensation and messages is through the grey substance of the spinal cord. 50% of the spinal cord is made of grey substance and the rest of the white substance. The pathways of the spinal cord are situated just below the skin. In their centres are the cell bodies and the pathways are in the peripheral portion. In the grey white matter there are tracts coming up and down. In the grey matter there are associative nerves.

The spinal cord directs the reflex action. In the reflex action, the sensory nerve carries the sensation to the brain and the message from the brain to the motor or defferent nerves. This action is so rapid that it takes almost no time. Besides the control of the reflex activity, the spinal cord links the brain with the external parts of the body. In it are connected 31 pairs of nerves coming from outside. Every pair has one sensory and one motor nerve. These nerves connect the spinal cord with the external parts of the body. Thus the various functions of the external parts of the body, *e. g.*, the movement of the hands, feet etc., are directed through the spinal cord. It has free control on all the learned activities including writing, reading, cycling, typing, walking, running etc. The brain has not to interfere with these habitual actions.

Besides the spinal cord, another important part of the central nervous system is the brain. The brain is divided into three following parts :

(1) Cerebrum; (2) Cerebellum and (3) Mid Brain or Medulla-oblongata or brain stem.

Cerebrum

The cerebrum is bigger than the cerebellum or the mid brain. Hence it is known as cerebrum or the bigger brain. Beginning from the eye brows, it extends to the middle of the skull. Thus it is the frontal part of the skull. It is the highest part in the brain. In it the arrangment of the white and the grey matter is exactly opposed to that of the spinal cord. Its upper surface is made up of grey matter while the internal part is made up of white matter. As has already been pointed out, in the spinal cord the upper surface is made of white matter while the internal part is made of grey matter. The upper grey part of the cerebrum is known as cortex. In it there are clusters of nerve cells which make the sensory area and the motor area of the brain. The white matter forms the nerve fibres. The grey matter forms the nerve cells.

In the cerebrum there are two hemispheres separated from a fissure and are known as the right and the left hemispheres. Most of the part of the right hemisphere is linked with the left part of the body. Thus between the hemisphere of the cerebrum and the body there is a crossed relation. On the surface of the cerebrum there are small convolutions or Gyri. The convolutions are separated from each other through the fissures. These fissures go deep into the matter of the cerebrum. But the brain is not actually divided into these fissures because under the surface of the brain various parts are connected with each other. In the cerebrum there is a fissure in the centre which is known as central sulcus. It is also known as fissure of Rolando. Besides this, there is also a fissure situated horizontally. This fissure is known as fissure of silvious or lateral sulcus.

The big portions of the cerebrum are known as lobes. These lobes are connected with other. Thus the cerebrum is divided into four parts, given below:-

(1) Frontal; (2) Periatal Lobe; (3) Occipital Lobe; and (4) Temporal Lobe.

All these four parts of the brain are connected by sensory projection fibres. These fibres enter one lobe from another.

These different parts of the cerebrum are connected with different types of sensation. For example, the frontollobe is connected with thinking. In complex thinking, it is this frontal lobe of cerebrum which works. In the central part on the one side of the central sulcus there is a motor area. This is situated in the frontal lobe. In the periatal lobe there is a somaesthetic area where the sensations from the skin and muscles are received. In the upper part of the temporal lobe there is auditory area where the sensations of hearing are received. In the back part of the brain in the periatal lobe there is the visual area where the sensations of seeing are received. Near the lateral sulcus there are areas of taste and smell.

Several experiments have been conducted regarding the value of these different lobes in the behaviour of man. Of these it will be relevant to describe here a case related with the importance of the frontal lobes in human behaviour.

A successful agent of the New York Stock Exchange used to have headache at the age of 40 years. This headache was very severe. Due to this his memory weakened and after some time the pain became so servere that he lost his consciousness. An examination through X-Ray revealed that both the frontal lobes of the brain were swollen. An operation of the skull was made and the frontal lobes were removed. Care was taken that the motor speech area should not get any injury.

After this operation, the patient became healthy and his headache was cured. But in some respects he was entirely different now. He left the idea of working as an agent. He did not bother about the feelings of his friends. He could not work seriously on any thing for a long time. When he was put under the care of some doctor, his behaviour improved a bit, but he could not take interest in his business. He did not like to sit peacefully. He used to walk or dance in the room. Singing, whistling and making noise became his habits. He had no control over his sex impulse and the impulse of self aggrandisement. He openly used to take part in sexual jokes and was interested in them. He cracked jokes with other women, but did not try to exceed this. Whatever work is mentioned before him he used to boast of his ability in that work. Often he threatened persons, but never indulged in physical violence.

When taken to the chamber of the psychologist, he appeared to be over active, facetious and distractable. It was with some difficulty that he could complete the test. The test revealed that his intelligence was normal. He appeared to be weak in construction of the sentences and the pictures etc., in which there is a need to keep the things together. But it appeared that he could never use his full intelligence. Before operation he used to employ his faculties of observation, attention, memory, logic etc. But after operation he did not use them at all. Thus it was concluded that his synthesizing and combining powers were lessened He lost control over his impulses. Thus he appeared to be impulsive and distractable.

From the above example, it is clear that the frontal lobes have an important part to play in human behaviour. Several experiments on animals have also been conducted regarding their importance. Their effect in learning activity was noted. When the frontal lobes of an animal were removed, it forgot the learned activity, but learned after some training. In the experiments on chimpanzies and monkeys, it was seen that they could remember as to which cup contained the food. Though some part of the frontal lobe was destroyed, the memory was not completely destroyed.

Q. 38. What do you understand by reflex action? Distinguish it from voluntary action. (*Agra 1961*)

Write a short note on—Reflex Actions (*Alld. 1959*)

What is Reflex ?

Ans. Reflex actions are unlearned responses which happen quickly and by themselves. In Woodworth's words, "A reflex is a direct muscular or glandular response to a sensory stimulus, an involuntary and unlearned response. Unlike the simple reaction it does not depend upon the subject's being prepared or set. The reflex does not need a Ready signal." Whenever something approaches the eyes, the eyelids blink. When something tickles the nose, a sneeze is inevitable. The muscles of the hand or foot immediately react if the corresponding organ is pricked by a needle. All these are reflex actions. They do not have to be learnt because they happen by themselves. Generally, they cannot be stopped even with effort. The individual is not even conscious of these activities when they are taking place. These activities are due to external stimuli. They take place far too fast to be noticed. When anything is taken near the eye, it takes approximately ·05 seconds for the blinking action to be performed. If a person sits with the lower part of his legs freely suspended, then when the tendon below the bent knee is pressed the tendon knee jerk happens in ·03 second. But this does not mean that all reflex actions take place faster than common reactions. For example, the pupil takes one or two seconds to contract, when a strong light focusses on the eyes. Besides the external stimuli, the reflex actions are also activated by internal stimuli. The contraction and expansion of the stomach and intestines and the veins, the colouring of the skin while blushing etc. are all reflex actions of the muscles. The flow of saliva in the mouth on perceiving something edible, the flowing of tears if a grit lands in the eye are reflex actions related to glands. Snatching the hand if it gets burnt, coughing, sneezing etc., are external reflex actions.

Generally there are two types of reflexes :

Kinds of Reflexes

1. Physiological Reflexes—This classification includes those reflexes of which the individual is not conscious, e.g., the dilation and shrinking of the pupils of the eyes. If strong light is focussed upon the eyes, it naturally contracts and it expands when the light is insufficient. The individual is unconscious of this activity on the part of the eyes

2. Sensation Reflex—As opposed to the physiological reflexes, a person is quite conscious of the activity in a sensation reflex. Coughing due to an irritated throat, sneezing because of a tickled nose, watering of the eyes due to the alighting of a grit in them are all activities of which the person has full knowledge.

Uses of the Reflex

Though undesired, uncontrolled and unacquired the reflex action is useful for the body of which it is a natural reaction. It protects the various parts of the body from external objects as blinking of the eye protects it from the approaching fingure. The reflex satisfies needs of the individual and many activities are carried out which are necessary for the body. For example, the sucking of the milk from the mother's breast is a reflex action of the child because he does not have to learn the activity of sucking.

The importance of reflex activity in a human being's life is also evident by the fact that all the reflexes do not take place simultaneously and appear at different stages in the person's development. As the person's nervous system matures, different reflexes appear at different times. The reflexes of sneezing and coughing make their appearance very quickly after birth but the reflex of blinking takes some 11 weeks after birth to appear. Sex reflexes appear after the age of ten. The activity of reproduction develops naturally because of this. As these reflexes take place without disturbing the attention of the individual, he can look to other things at the time these reflexes are happening. The needs of the new born baby are fulfilled by these reflexes while he does not learn to satify them.

In brief the peculiarties of the reflex are :

Peculiarities of Reflex

1. All the reflexes do not appear at the same time but at different stages in the development of the organism.
2. Reflexes are useful for the body.
3. It is difficult to control the reflex as most of them are unconscious.
4. Reflexes are immediate.
5. Only one reflex corresponds to one stimulus *e.g.*, blinking the eyes is due to strong light.
6. These reflexes are not learnt but innate.
7. Reflexes are simple and limited to a particular area. Their reaction to an excitement is in some particular part of the body.

The specialities of the reflex actions mentioned above make apparent the differences between them and voluntary actions. Fundamentely, they are as follows :

Difference between Voluntary and Reflex Actions

1. Reflexes are uncontrolled while the voluntary actions are under full control. It is easier to stop running than to stop the eye blinking.
2. When compared to voluntary, the reflex actions are immediate, because they do not need contemplation or decision. Voluntary actions may take place a long time after the stimulus.
3. Only one reflex results from one stimulus but there may be many voluntary actions as a result of the stimulus. Bright light will only cause a blinking of the eyes but almost any other reaction like trembling, running, falling may ensue.
4. While the reflex actions are innate and unacquired the voluntary actions like running, walking etc., are learned.

5. Reflexes are simple but the voluntary actions may be complex. The reflexes are limited while the whole body may partake of a voluntary activity.

* * *

Q. 39. **What do you understand by cerebral localisation ? Explain** (*Osmania 1963*)

Explain localisation of function in the Brain Cortex. (*Poona 1965*)

Write note on—Localisation. (*Bombay 1964*)

Phrenology

Ans. The study of the localisation of brain functions has its own story in the history of psychology. The problem of localisation is whether different areas of the brain activate different functions or not. This discussion was started in 1800 by the theory of phrenology advanced by the famous anatomist Gall. Gall tried to relate the external elevations in the skull to mental specialities or peculiarities. He said that these elevations indicated mental peculiarities. According to the theory of phrenology, mental faculties are situated behind the forehead in the forefront of the brain. Thus middle brain constitutes the residence of the ethical qualities while the rear end is for the animal tendencies. The sex instinct is in the medulla oblongata while the quality of faith finds itself in the stem.

Experiments of Flourens

In 1825 or therabouts, Flourens concluded from his experiments that the cerebrum worked as a unit. Thus he refuted the localisation of the various functions in the brain and challenged, against the theory of phrenology, that the cerebrum works as a whole. Thus, some one hundred years from today it was belived that one part of cerebrum could not be distinguished from another. The cerebrum is a collection of many parts which can perform many activities but each part of which is capable of performing every one of those activities

Proofs of Localisation

This theory advocated by Flourens was credited till 1860. After this, Paul Broca showed that when a particular area of the cortex was injured, a difficulty in speech was experienced. After Broca's experiments, Frish and Hitzing found that electrical sensation in specific parts of the cortex caused motion in various parts of the body. These experiments high lighted the theory of localisation for the second time. The expert physiologists supported the notion because they found substantial difference in the structure of the various parts of the brain. Surgeons also supported the theory of localisation because they wanted to explain the different physiological changes caused by injury to different parts of the brain. Thus fifty years ago, the theory of different centres for different activities, in the brain of course, was being supported and these centres were being further subdivided. Psychiatrists were establishing relation between specific mental illnesses and the conditions of specific parts of the brain.

Current Situation

But now the emphasis laid in favour of localisation is losing its strength. Some localisation of function and structure in the cortex is still believed but great care is taken before a certain area is pronounced as the centre of a specific type of activity. The cerebrum is popularly believed to be an adjustor part. It is understood that its function is not to perform diversified and unrelated activities but to direct the creature to mould its behaviour in conformity with the environment. Many experiments have definitely proved that information of different kinds of changes reaches different areas of the cortex. The existence of somaesthetic area, premotor area, auditory area and visual area and different centres has been indicated by experimental administeration of electrical sensations to various parts of the brain. Thus, this kind of cortical localisation is no longer in doubt.

The boundaries of different activities however, cannot be decided by having them centred in the cortex. For example we accept one somaesthetic or sensation area but in 1916 Dusser de Barenne showed at Oxford that inspite of the localisation of a sensation area, it extends over a large area of the cortex and its boundries are not established. From this it is concluded, that though the area of reception and projection of sensations may be localised, the localisation of areas for converting sensation signals into sensations is not possible. The direct paths of the entrance of visual sensations to the cortex of the brain can also be determined but they cannot be accepted to be completely unrelated to the areas surrounding them. The signals received in the motor area do not convey any thing and any knowledge is due to shock or injury. In fact the first attempts at localisation were made in the direction of the motor area, but as the experiment at Oxford proved, there is a lot of scope in this direction. Nothing definite can be said whether the area for the assimilation of information from different organs of the body is definite or not. Nothing definite can be said about the localisation of mental function or the limits of their areas and centres. Further research in the future may make it possible to say something with authority upon the subject.

Many methods are employed for the discovery of localisation of different activities in the brain. The major methods are as follows :—

Methods for the Study of Localisation

1. *Method of Electrical Stimulation*--The exposed part of the cortex is subject to weak electrical stimulation and the resulting motion in the body serves the purpose of establishing the relation of the specific activity to a specific area in the brain. The method of the study of localisation is the most famous.

2. *Pathological Method*—The disturbed activities and behaviour of a diseased person are noted following which the person is cured by the surgical or otherwise removal of the diseased part of the brain. The effects are again observed.

3. *Method of Extirpation*—Some part of the brain is removed and the effects on the behaviour and physiological activities are observed. The area which is extracted is taken to be the centre of those activities or functions which either become absent or are affected in any way. These experiments are usually carried out on animals.

4. *Fibre Tracing Method*—This method traces the fibres which connect the cortex to the lower centres and finds the relation of the various parts of the body to some specific areas in the cortex. Though the method is satisfactory the tracing of fibres is no easy task.

When the above methods succeed in localising a particular activity in the brain, the research is credited and accepted in the absence of any evidence to the contrary. These methods are employed in the location of functional areas in the brain.

Localisation of Combining Areas

Besides these functional areas there are two sizable combining areas, one of which is situated in the midst of many sensation areas in the parietal, temporal and occipital lobes, while the other is found in the motor area and in front of the frontal lobes. The knowledge of the localisation of these areas originates from any injury to the brain. The result of these injuries is manifested in the form of Aphasia, Agnosia and Apraxia, and they are the ones to establish the localisation. Thus it will be in keeping with the subject to make a brief description of them.

1. Aphasia—In this illness, speech and language cannot be used or used with difficulty. A connected and meaningful, comprehensible sentence cannot be spoken and neither can the meaning of such a sentence be understood. The cause of this difficulty is not paralysis but rather injury to the area surrounding the auditory area.

There are two kinds of aphasia—speech aphasia and motor aphasia In the latter kind, the difficulty lies in emitting or ejecting words from the mouth and the difficulty, too, takes various forms. Some patients can pronounce separate words but not sentences, even when written. Other patient's capabilities extend to the pronounciation of simple words like yes and no only. The lower motor area is usually injuried.

2. Agnosia—The ability of perception is undermined in agnosia. The person hears and sees all right but he cannot utilise the sensory data in the form of specific, concrete signals. In visual agnosia, the result of injury to the occipital lobe, the person loses his ability to recognise and distinguish colour and form. He cannot recognise sounds. If the injury is just behind the somaesthetic area, the patient cannot recognise an object placed on his hand and neither can he, on the other hand, metaphorically speaking, make any guesses about its weight.

3. Apraxia—The ability of work or effort is adversely affected. An apraxia patient cannot light a cigar and smoke it. He can perform singular activities but the relating of many activities is beyond his capabilities. Generally the appearance of apraxia is the consequence of injury to an area in the vicinity of the motor area.

Intelligent behaviour is absent in aphasia, agnosia and apraxia. Symbols and skilled efforts are of great importance in intelligent behaviour and skilled efforts or motor activities depend on specific areas of the cortex which, if injured loses the combination of these parts. The loss of this combination and the loss of intelligent behaviour in the individual both are determined by the extent of the injury.

The work of combination in the brain is effected in two ways—

1. Internal Combination—In this, the stimuli are many while the activity is solitary. This combination finds expression in the

Types of Combination in the Brain

unitary response to an object. For example, when we see a film, a stream of various stimuli falls on the retina with the result that we see an undivided scene. Similarly though the noise enters the ear in a succession of sounds it is heard as music in the combined form. Thus, in internal combination there is a type of collective activity which necessitates specific nervous behaviour. Possibly, the area for the collective internal combination is the adjustor area of the posterior end, located in the midst of various sensation areas.

2. *External Combination*—Many results are caused by a unitary antecedent. For example you have to get up from the chair, go to the door, turn the key in the lock, remove the bolt etc., in order to open the door. A distribution mechanism is needed for this. It is formed by the branches of an axon and the stimulating of many nerve cells by these branches. The area for the distributive external combination is quite possibly the front part of the brain.

Localisation of combining Activity

Undisputed evidence has not been found on the subject of the brain takes part in these combining functions. In fact, a large part of the brain takes part in these combining functions a fact mentioned once before. Thus it is difficult to localise it. There are many activities like learning or memorising of which the whole cortex partakes. In an experiment it was seen that a monkey forgot all learned actions when the frontal lobes were removed from the brain, but learnt it when taught again. Many experiments along these same lines made it apparent that different parts of the cerebrum assist in the learning of an action. Thus the diminution in the ability of learning depends upon the percentage of the cortex removed. The difficulty in learning and the disturbance or disorganisation of activity depends upon the corresponding damage to the cortex.

Conclusion

The above treatise on the localisation of brain functions makes it clear that the localisation of the areas of various functions is accepted now a days. But the boundaries of these areas are as yet undefined and nothing can be said definitely about them. No indisputable statement can be made on the subject of localisation of the combining areas. Many activities are incapable of being localised because of their dependence on the whole cortex. The truth of the matter is that this problem of localisation is still in the experimental stage and more experiments must be carried out before any authoritative statements can be issued. Future experimentation will be the basis on which any conclusions will be founded. But till then, it can be believed that there are specific areas for dissimilar activities whose boundaries are not demarcated.

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Q. 40. **What is the importance of the study of Nervous system for Psychology ? Illustrate your answer.**

(*Gujrat 1959*; *Banaras 1965*)

Or

In what way is the study of the nervous system helpful in understanding Psychology ? Give a brief account of the structure and function of the brain. *(Agra 1960)*

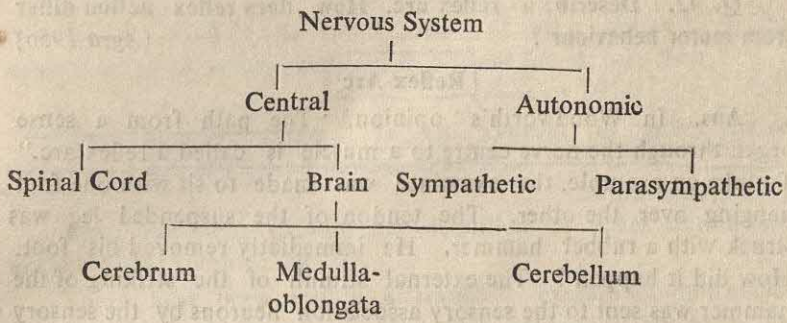
Ans. For the function and structure of the human brain please refer to question 33.

Psychology studies behaviour, which includes internal experiences as well as physiological activities. Behaviour is a response to some internal or external stimulus. How does this response take place ? The body being a unit, how is it that the response of different parts is different ? The parts of the body are dissimilar, then how is it that they act as an organised unit ? Man does not respond to every stimulus but makes selection in the acquisition and motion of stimuli and makes many differing combinations from these motions. How does he do it ? How is the unanimity of aim maintained irrespective of the diversified efforts ? The study of the nervous system provides an answer to these questions and complements the study of behaviour which is psychology.

* * *

Q. 41. **Describe briefly the nervous system and compare it with the telephone system of your city.** (*Agra 1957*)

Ans. There are two parts of the nervous system : **1.** Central Nervous system, 2. Autonomus Nervous system. The central nervous system too has two parts—1. Spinal Cord. 2. Brain, which has three parts—1. Cerebrum, 2. Medulla Oblongata, 3. Cerebellum. The Autonomus Nervous system has two parts—1. Sympathetic, 2. Parasympathetic. The following chart shows this structure—



For a detailed description of the first part of the nervous system refer to Q. 28.

For a detalied description of the second part of the nervous system refer to Q. 32.

Nervous System and Telephone System

In man a nerve network spreads throughout the body, similar to the telephone cable network, spreading over the city. These nerves reach every receptor and muscle just like the cables which reach every business centre, office, hospital, college etc. All the nerves of the body are connected to the central body of the spinal cord and this central body resembles a telephone exchange where all the wires from the different telephones meet. Information is sent from any telephone in the system to the telephone exchange and the desired telephone connection is got. Thus the exchange of information between two centres is always through the medium of the telephone exchange. A similar state of affairs exists in the nervous organisation. Sensory nerves bring information to the centre from the receptor and the motor nerves carry directions to the muscles. But there is a big difference between the telephone and bodily nervous system. The telephone exchange is merely a medium which has no say in anything which goes on. On the other hand, the brain is not merely a centre because it decides upon the response to the stimuli and the parts of the body obey it. So, in reality it is this centre which controls the whole response mechanism.

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Q. 42. **Describe a reflex arc. How does reflex action differ from motor behaviour ?** (*Agra 1956*)

Reflex-Arc

Ans. In Woodworth's opinion, 'The path from a sense organ through the nerve centre to a muscle is called a reflex arc." To take an example, the examinee was made to sit with one foot hanging over the other. The tendon of the suspended leg was struck with a rubber hammer. He immediatly removed his foot. How did it happen ? The external stimuli of the striking of the hammer was sent to the sensory association neurons by the sensory neurons. The order for action was conveyed through the backbone to the motor neurons from these association fibres. The motor nerve took the information to the muscle related to the foot, which immediately contracted removing the foot. In this example the path from the tendon of the knee through the nerve centre to the muscle of the foot is called a reflex arc. The whole path is called a sensory motor reflex arc.

In the above example the work of the sensory neurons associatied neurons and motor neurons in the entire activity has been shown. All these types of neurons take part in a reflex action. The total activity described above takes very little time.

Generally, the reflex arc does not work independently of the rest of the nervous system. Axons from many parts come and meet in the nerve centre which works under the effects of many stimuli and not one stimulus. For example, the breathing centre receives many other sensory impulses besides the sensory impulses from the lungs. If there is pain in the body somewhere or there is a noise outside or if some cold water is poured on the skin, the breathing is affected. The quantity of carbon di-oxide in the blood passing through the breathing centre affects the centre. Mental directions can also alter the rate of respiration. It should not be imagined that the rest of the nervous system becomes inactive during a reflex activity. In reality, the nervous system is always active. Stimuli are incessantly received by it which causes changes in it. It is a continuously active system. For the difference between reflex action and motor behaviour see question No. 38.

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Q. 43. **What are the characteristics of reflex action ? Is the concept of reflex action sufficient to account for all behaviour ?**
(*Bombay 1960*; *Gujrat 1959*)

What is reflex action ? Is the concept of reflex action adequate to account for all human behaviour ?
(*Gujrat 1955, 1959*)

Ans. For characteristics and definition of reflex action see answer to the question No. 37.

There have been certain attempts to explain all human behaviour in terms of reflex. One such attempt is known as the theory of Tropism. Jacques Loeb tried to account for all human behaviour in terms of physico chemical reaction known as tropisms. This theory has been condemmed by all the psychologists. The distinction between reflex and voluntary action shows the futility of any attempt to utilize the concept of reflex to explain all human behaviour. As a matter of fact no behaviour can be explained by reflex. This is amply clear by the characteristics of behaviour given in Qs. 44. Behaviour is purposive and motivated while reflex is purposeless and mechanical. Behaviour changes according to the requirements of the realization of a goal. There is no such change in reflexes. Behaviour requires energy mobilisation of the whole organism while reflex is a local response. Thus the concept of reflex is inadequate to explain human behaviour. Behaviour can not be reduced to reflexes.

* * *

Q. 44. **What are the characteristics of 'behaviour' ? Can behaviour be reduced to reflexes ?** (*Karnatak 1955*)

What are the marks of purposive behaviour ? Explain and criticise the Reflexist inter-pretation of animal behaviour.
(*Bombay 1960*)

Ans. The analysis of the place of motive in experience and behaviour, as given above, clarifies the general characteristics of a motivated behaviour. Roughly speaking, these characteristics are follows :

(*1*) *Energy Mobilisation* : The first characteristic and the most important one of the motivated behaviour is energy mobilisation. Even the most peaceful animal becomes frightening in times of emergency. This is due to the mobilisation of energy. This process of the mobilisation of energy is chemical as well as physical.

This process cannot be perceived directly, but when there is some difficulty in the attending of the object of motive, this process is seen in the form of extra energy. The animal tries to attend to the object with as much power as is the power of the motive behind it. A hungry dog takes the bread even while beaten. The labour which a student puts in to attain a first division in the examination is not seen in his ordinary life. Thus it is often observed that some of the persons brought up in poor families are very persevering and laborious. Due to the sex urge some men perform inhuman actions which they would never do in ordinary conditions. When the need is excessive the process of metabolism in the body is also increased in the same proportion and the nervous energy increases in the same ratio.

(2) *Persistance* : Another characteristic of motivated experience or behaviour is persistance. The animal cannot leave its work without attending the goal of its motive. An animal wandering in search of food keeps on roaming so long as it does not get it. The fighting birds keep on fighting till either of them is wounded or runs away. Sometimes some motivated actions go on for years. A young man in search of a job goes on labouring for several years till he gets a suitable one. A lover determined to win his beloved does not leave her even in the face of great difficulties. Even in the motivated behaviour of insects and animals much patience and persistance is observed.

(3) *Variability* : The third characteristic of the motivated behaviour is variability. Motive has a goal, hence an activity due to it is not mechanical, but continuously changes with the view of attainment of goal. A hungry cat closed in a cage tries new devices to open it and this change of behaviour goes on till it succeeds in coming out of the cage. A man with the goal of earning money tries hundreds of ways for it. Sometimes he purchases a lottery ticket while at other times he is busy in some business. In fact the motivated person goes on changing his ways till he arrives at the way successful for the achievement of the aim. In the beginning his behaviour is trial and error, but after he knows the successful way, he always follows it.

(4) *Restlessness for the attaining of the aim* : The motivated behaviour is goal-directed. The restlessness which is seen in such a behaviour persists so long as the goal is not achieved. For example the goal of hunger is food. Till the food is taken, there is persistant restlessness due to hunger. After the food is taken this

restlessness disappears. The goal can be conscious or un-conscious. Sometimes the man knows the goal of his motive, but at other times it is only after long efforts and trial and error that he knows the real object which will bring his restlessness to an end. The physical and the mental motives have physical and mental goal respectively. It is this goal which distinguishes between mechanical and the motivated behaviour.

5. *Extinction of restlessness after the attainment of the goal* :- The fifth characteristic of motivated behaviour is the extinction of restlessness after the achievement of the goal. The restlessness of the motivated behaviour exhibits itself in the following ways of the fulfilment of some internal want or desire and extinguishes as soon as that want or desire is fulfilled. A thirsty animal roams in search of water. As it gets water it drinks it and the restlessness is gone. There are only two ways to get rid of the restlessness of the motive. Either the tension should be removed or it should be changed. The tension can be removed either by the attainment of some object or by avoiding some undesirable object. Some times conflicts are observed due to tensions of more than one motives at the same time. Some tensions can be removed immediately while some take days or years to be extinguished.

For answer to the second part of the Qs. see answer to the Qs. No. 43.

6

PSYCHOLOGY OF COGNITION : SENSATIONS AND SENSE ORGANS

Q. 44. **What is the nature of sensation ? What are its attributes ?** (*Bombay 1959, 54, 50*; *Karnatak 1965, 56*; *Gujrat 1955*, 53, *52*)

What is sensation ? Illustrate its types, corresponding receptor organs and stimulus objects. *(Baroda 1964)*

Ans. Sensation is the first response of the organism to the stimuli. Its nature is clear from the following points :—

Nature of senstation

1. Comparatively passive state--Sensations are not voluntary in the sense that we cannot produce them at will. They do not depend on our choice. They are, on the ther hand, forced upon us by the environment. The sense organs passively receive sensation. Thus sensation is a comparatively passive state of consciousness. This is amply clear by its comparison with perception.

2. Partly subjective and partly objective--Sensations form a part of the individual's personal experience. Thus they are subjective to that extent. On the other hand they are also objective as they are answered by an external stimulus. Thus sensation is partly subjective and partly objective.

3. Distinction of Quality—Sensations differ in quality. For example a sensation of sound differs from a sensation of colour in quality. Different sensations differ in quality.

4. Distinction of Quantity—Sensations differ in quantity regarding intensity, duration and extensity. An example of the difference in quantity due to intensity is the difference between the loud sound of thunder and the soft sound of whisper. Duration depends on the persistance of the stimuli. As the persistance differs so the duration and with it the quantity of the sensation. Extensity *i.e.*, voluminousness depends upon the sensitive surface attended. As the affected surface increases so does the extensity thereby making a difference in the quantity of different sensations.

5. *Relativity*: Hoffding points out to relativity among sensations. A sensation is relative in three senses. Firstly, it is relative to other sensation in so far as its arousal depends on its contrast with other sensations. Secondly, as Weber, experiments have amply demonstrated the quality of the sensation is also relative to other sensations. For example if one handles ice first and then water, water will appear more hot than it does normally. Thirdly, the increase and decrease in sensation due to corresponding increase and decrease in stimuli is also relative to foregoing sensation. Thus Hoffding has rightly said, "From the moment of its first coming into being, the existence and properties of a sensation are determined by its relation to other sensation."

6. *Distinction in traits*: Different sensations have different traits. For example the organic, spatial and motor sensations have different characteristics distinguishing them from each other.

7. *Special sensations are distinguishable*: Special sensations are localized in the external world. They can be easily distinguished from each other.

Attributes of Sensation

Sensations have different attributes. The main attributes have been classified into :

1. Quality
2. Intensity
3. Duration
4. Extensity
5. Local-sign.

1. *Quality*: Sensations differ in quality. Each sensation has its own quality. Sensations received through different sense organs differ in quality. Again, sensations received through the same sense organ also differ in quality. Different types of colour and taste exemplify this fact.

2. *Intensity*: Different sensations have got different degree of strength or intensity. The intensity of a sensation depends upon : (a) the objective strength of the stimulus, (b) the mental state of the individual.

3. *Duration*: The duration of a sensation depends on the continuity of the stimulus or of its effect. As this varies with different sensations their duration also varies.

4. Extensity : Extensity meaning voluminousness or spread-outness of sensation is a spatial characteristic. As this increases the sensation appears to be bigger. For example the touch of a palm is more extensive than the touch of finger.

5. Local sign : Different sensations are distinguished according to the spot stimulated. This is local sign. It is because of different local signs that one can distinguish among the sensations, having and same quality and same intensity, duration and extensity. Thus one can distinguish between two pin pricks simply because they are felt as two.

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Q. 45. **What are the main kinds of sensation ?** (*Gujrat 1955*) **Write short note on Organic sensations. Define sensation. Explain briefly the different kinds of sensation.** (*Punjab 1963; Gujrat 1958*)

What are the main types of sensation ? Give an account of any two of them. (*Agra 1961*)

Types of sensation

Sensation is the first response of the organism to the stimulus and is a step in the direction of perception. In practice, sensation is not separated from perception. This distinction is necessary in order to facilitate study. Ward expressed it thus : "Pure sensation is a psychological myth". Sensation is felt through the sense organs. We receive sensations through the eyes, nose, tongue, skin and ears popularly known as the five sense organs. Apparently, there are many types of sensation but they can be divided generally in the following three categories :

(1) Organic sensations. (2) Special sensations. (3) Motor sensations. Special sensations correspond to the five sense organs *e. g.*, visual sensations, auditory, olfactory and tactual sensations and sensations of taste.

Organic Sensations

The sensations which arise from the conditions of the internal organs are known as organic sensations. They do not need any external stimulation. Hunger creates organic sensation caused by the contraction of the walls of the stomach. Similarly, thirst creates organic sensation which results from the drying up of a membrane located at the back of the neck. Obviously these sensations indicate the internal condition of the body and do not convey any knowledge of the outside world.

The organic sensations are of three types, this distinction being based on their location. They are :

1. Sensations whose location can be determined—Some organic sensations can be easily located. The experience of cutting, burning blistering etc., is in the tissue. Its location is fixed.

2. Sensations whose location is undetermined—The position of some sensations cannot be determined. The feelings of comfort and restlessness are spread over the entire body and no particular part of the body can be assigned to them.

3. Sensations whose location is vague—Apart from the organic sensations, mentioned above, there are some more sensations about whose location we have vague notion. We have a hazy idea of the general location of some sensations, like hunger, thirst, pain, though we do not know the exact location minutely.

Organic sensations are of considerable importance due to the role which they play in the Affective and Motivational aspects of life. Hunger and thirst make us restive and compel us to search for food and water.

Special Sensations

It has already been mentioned before that the special sensations are those which are caused by the specific sense organs eyes, nose, ears, tongue and skin. These special sensations can be clearly distinguished from one another. They originate from external stimuli, like the waves of ether, to mention only one.

There are the following differences between organic and special sensations :

Difference between organic and special sensations

1. The source of special sensations is external stimuli while the source of the organic sensation is internal.

2. There are specific organs for the special sensations while there is no such provision for the organic sensations.

3. The special sensations give knowledge of the outside world, which the organic sensations do not.

4. The special sensations can be recollected with case, but the organic sensations cannot be retained easily.

5. The special sensations can be distinguished clearly from each other. This is not the case with organic sensations.

6. It is possible to locate the special sensations while, in most cases, the location of organic sensations is not possible.

7. Special sensations are comparatively more intense in quality and quantity than the organic and motor sensations. The five special sensations may have many internal sub-divisions.

The exposition upon the differences between organic and special sensations makes obvious the distinctive characteristics of the later. The five special sensations are the following :—

1. *Visual sensations*—Visual sensations, which are stimulated by light waves are experienced through the medium of the eyes. They are of two types—(i) Sensations of Brightness, (ii) Sensations of colour, of which the following four are primary—red, yellow, green and blue. Colour blind people do not feel these sensations.

2. *Auditory sensations*—These are received through the ears. They are the reactions of the ear to the vibrations in the air. Usually, the local symbol is absent in auditory sensations in which the power of discrimination is high. These sensations are important from the emotional view point.

3. *Taste sensations*—It is the tongue which acquires these sensations. There are many papillae in the tongue. Mostly, there are taste pores in these papillae. There are bag-like structures called taste buds below taste pore, and they contain 10 or 12 taste cells. These taste cells are also the taste receptors. The sensation of taste passes through the taste pores and reaches the taste bud, whence the sensation is transferred to the brain. The result is the experience of taste. The central portion of the tongue cannot receive sensations of different tastes. The tip of the tongue acquires the sweet taste, the rear the bitter taste, the edges the sour taste, while the saline taste is spread uniformly all over the tongue.

4. *Olfactory sensations*—Receptor cells for the olfactory sensations are located in the nose at its apex. As only a part of the breath reaches them, it is necessary to draw a deeper breath in order to smell the odour. The odour carrying air, which is drawn in, activates these cells by touching them. The sensation is carried to the brain and odour is perceived.

5. *Tactual sensations*—The skin contains the receivers of someaesthetic sensations. There are two types of sensation, included in somaesthetic sensations—cutaneous and kinaesthetic. Cutaneous sensations include the sensations of pressure, warmth, cold, and pain. There are different areas for these sensations, interspersed with insensitive areas. The other type of sensations, kinaesthetic

sensations, are felt in muscles, bones, and various nervous joints and their covering membranes. These are related to the receivers. There are four types of cutaneous sensations *viz.* pressure, warmth, cold and pain. They are different from each other and they have different areas of the body assigned to them.

Kinaesthetic sensation

As is obvious from their name, these are the sensations related to motion. Tension, contraction, pulling etc., are examples of motor sensations. They are caused by the muscles, tendons and joints. The nerves embedded in these give the sensations of motion when the muscles contract or the joints move. The brain receives information of these sensations through the sensory nerves whose fore parts are in the muscles, tendons and joints. The motor sensations put pressure upon the skin.

There are three types of motor sensations:—

1. *Sensations of Position*—Such a sensation is generated when the arms are held motionless in a fully extended position.

Kinds of motor sensation

2. *Sensations of free Movement*—If the arms are moved in all the directions, then the arising sensations are those of free movement.

3. *Sensations of Impeded Movement*—These can be experienced by lifting some heavy weight.

Importance of Motor Sensations

Motor sensations are a means of the knowledge of the primary qualities of objects *e.g.*, their position, distance, direction, weight, etc. These sensations take place automatically and generally pass by unnoticed. They become conspicuous by their absence, if such a contingency is created by some defect in the body.

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Q. 47. **Describe the structure of the eye and explain how colour vision arises.** (*Madras 1962*; *Poona 1959, 1965*; *Karnatak 1965*; *Ravishanker 1965*)

Indicate with the help of a diagram the following parts of the eye :—

Cornea: pupil, lens, ciliary muscle, fovea and optic nerve. State exactly the function of each of these parts. (*Punjab 1952*)

How do we see ? Explain the phenomena of colour vision. (*Baroda 1963*)

Visual Receptor

Ans. The physical sensations of light from the environment are collected by the visual receiver cells located in the eyes. The eyes are connected to the Diencephalon which is in turn, related through the occipital lobes to the cerebral cortex.

Structure of the eye

Observed from the outside, there appears to be an eye ball in each eye. There is an external covering whose fibres are rather tough and white. It is called the selerotic coat. It protects the internal parts of the eye and preserves its shape. The foremost part of this coat is transparent and is called the Cornea. Below these there is another coat, called the Choroid coat. It is more of a network of blood capillaries than anything else. In the gap between the external covering and the lens, there is a coloured muscle called the Iris. This assimilates the light falling upon the lens. The lens is the transparent cornea. The ciliary muscle accomodates the second lens, which is behind the retina. The eye focusses objects at various distance with the help of the ciliary muscles. The retina is a thin membrane stretched over the part of the eye. It contains the sensory cells which are connected to the brain by means of the nerves. The space between the cornea and the lens and the lens and the retina is filled with a fluid which helps to keep the eye healthy. There are seven layers in the retina which contain various types of cells. They are linked to the Optic Nerve. The sensation of vision is caused by the light

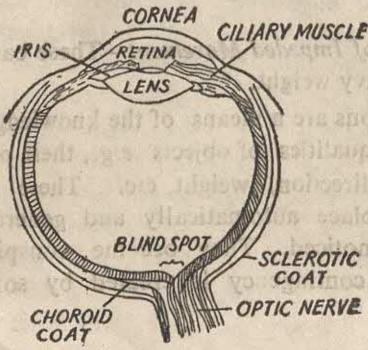

Figure 1—Eye

falling on the retina. On the retina there is aspot called the Fovea which is indentical with the Iris. The vision is clearest when the light falls on the spot. This place where the optic nerves meet the eye is known as the Blind Spot.

Though the object is visible here its shape is distorted. The given diagram illustrates the various parts described above.

Visual Receptor cells

Having understood the structure of the eye, it will be easy to understand the visual receptor cells. This understanding will bring with it a knowledge of the process of seeing. The retina has two types of sense cells : Cones and Rods.

1. Cones : These, located in the yellow and blue areas exclusively, number something like 70,00,000, in the entire retina. They are concentrated near the Fovea. As the distance from the Fovea increases they grow less and become out numbered by the Rods. These cones are indispensable for colour vision and a person becomes colour blind if either they, or their sensory nerves sensitivity decreases with the intensity of light.

2. Rods : These sense cells assist in vision when the light is dim because their sensitivity increases with the decrease in the intensity of light. Being colourless, they work when the cones do not and that is when object is colourless. The change over to rod vision due to the fall in light intensity is called Purkinge-Phenomenon.

How do we see ?

In seeing, light reaches the eye with the help of electro magnetic waves. The sensation of light depends upon the wave length, purity and amplitude of the wave. The purity of the waves affects the saturation, the length affects the hue and the amplitude affects the brightness of the visual sensation. All the parts of the retina do not absorb colours and the areas which do absorb colours are divided into different parts for the different colours.

The eye ball is rotated in the socket by six muscles. There is an adjustment between the motion of the eyes. The retina adjusts the light while the distance of the object is compensated for by the motion of the eye ball. Thus, these two separate adjustments make it possible for us to see objects at varying distances.

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Q. 48. **Make a diagram showing the tympanic membrane, the ossicles, the semicircular canals and the cochlea in the apparatus of the ear and name the particular functions of each of these parts.**

(*Punjab 1951*; *Gorakhpur 1962*)

Ans. The ear is a mechanical receptor of sensations which are of a mechanical nature. The ear with which we hear has three parts :

Structure of the ear

1. *External Ear* : This includes all that we can see from the outside, even the opening. The thin membrane, the eardrum, separates the external ear from the middle ear.

2. *Middle Ear* : There are three small bones in the Ear ossicles, which are called the Hammer, Anvil and Stirrup, respectively, so termed because of their shape or function. The hammer and anvil work like a hammer and anvil respectively, while the part known as the stirrup is shaped like a stirrup. The middle ear is linked with the throat through the Eustachian tube.

8. *Inner Ear* : The inner ear located in the Ear Cavity has three parts : Vestibule, Cochlea and semicircular canals. The vacant space surrounding these parts is filled with fluid called Perilymph. At one end of the vestibule there is an elliptical opening covered by a membrane connected with the stirrup of the middle ear. The tube of the cochlea is connected with the vestibule. This cochlea tube is filled with another kind of fluid, closely related to the act of hearing. In the cochlea, there is an organ called the organ of corti, which is placed on the internal membrane. There are hair cells in the organ of Corti, which are connected to the auditory nerve fibres. The semicircular canals are meant more for the balance of the body than for hearing.

How do we hear ?

The act of hearing involves all the parts of the ear which have been elaborately described above. The first step is the vibration of the tympanic membrane of the external ear. The hammer is put in motion as a result of this disturbance, and the motion is transmitted through the anvil to the stirrup. The agitation passes through the elliptical opening and puts pressure on the fluid in the internal ear. By the time it reaches this point, the pressure of the sound wave is magnified 30 times. The pressure on the liquid actuates some local action and disturbs the Hair Cells in the cochlea.

After the necessary analysis, the sensation reaches the Parietal lobes by passing through the auditory nerves. The external ear contains a wax-like substance whose function it is to protect the tympanic membrane from high frequency sound waves.

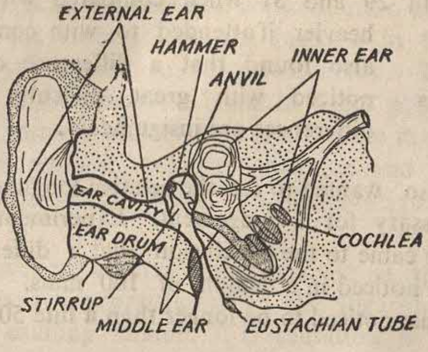

Figure 2. Ear

Q. 48. **Write a short note on the Weber Fechner Law.**
(*Madras 1962*; *Bombay 1959, 1958, 1955*; *Poona 1965*; *Agra 1954*; *Gujrat 1964, 1955, 1952*; *Karnatak 1955, 1952*; *Gorakhpur 1962*)

Explain the Weber-Fechner-Law. What are its limitations ?
(*Bombay 1955*; *Muzaffarpur 1955*)

What are sensations ? Give a critical account of the Weber-Fechner Law. (*Karnatak 1965*; *Bombay 1954*)

Weber's Problem

It is a matter of common experience that it is difficult to differentiate between two sensations which are nearly alike. This can be further clarified by an example : if you are told to lift two boxes of nearly the same weight one by one, you will not be able to indicate the heavier of the two. And if a small object is placed in one of the boxes and the box lifted, it is still possible that the difference may go unnoticed. The question which arises is about the difference that should be made in the weights in order to make it noticeable or the weight that should be added in order that the increase may be perceptible. The questions of similar nature arise in referenee to the other sensations. Weber was intersted in experiments of this kind. He carried out experiments to find out the minimum increase in weights necessary to tell the difference between two weights. He also conducted experiments to find the relative difference between two weights either placed on the hand or lifted by the hand in order to be able to gauge their difference.

Weber's Experiments

From his experiments, Weber found that 30 ounces when compared with 29 and 31 when compared with 30 feel slightly heavier if attended to with concentration. He also found that a difference of ½ an ounce is noticed with great difficulty while smaller differences are insignificant.

Weber also wanted to see the relative longitudinal difference which is necessary for a judgement. Experimenting along these lines, Weber came to the conclusion that a difference of 1 mm. can hardly be noticed in a length of 100 mms. Similarly a line 50·5 mm. is just noticed to be longer than a line 50 mm. long.

Couclusion

Weber on the basis of such experiments, reached certain conclusions as to the minimum difference capable of being noticed. This diference was titled, 'Just noticeable difference' or J. N. D. Colloquially, this is called 'difference limen' or DL. It was pointed out that the number of times it should be observed before declaring it DL, was not fixed. It was decided that 75 times out of 100, the difference should be noted. Weber also observed that the DL was a fraction of the constant quantity and was itself constant. To make the example of weights in which the weight of 31 ounces was compared to the weight of 30 ounces, the constant the DL was 1 oz. The DL is 1/30th of the constant. Now, even if the weight is increased to 60, the DL will still be 1/30 of the constant. That is the weight to be recognised should be 2 oz. heavier : $1/30 \times 60 = 2$ oz. Experimenting on suitcases, Weber found that to make the difference recognizable 31 lbs. should be compared to 30.62 lbs. to 60 and 93 to 90. Apparently, the differences in order to be conspicuous, for 30, 60 and 90 must be 1.2 and 3 lbs, respectively; and DL is the same fraction of the standard.

Weber's Law

From these conclusions, Weber enunciated the following law : "The increase in any given stimulus which is correctly perceived in 75 percent of the trials is a contant fraction of the size of the stimulus." The experiments described above prove the law. In the example of the suitcases, the increase was invariably 1/30th of the constant. The increase in weight in the 75 percent correctly perceived case, was 1, 2 and 3 lbs. for 30, 60 and 90 lbs. respectively,

Fechner's Research

Fechner experimented for a long time on Weber's law and discovered that when an increase in a constant ratio is affected in the stimulations the increase in the resulting sensations is in the same quantity. This increase in the sensations is not in direct proportion, but in steps equivalent to the increase in stimulations. Consequently, the relation between stimulus and sensation is displayed by a logarithmic curve. In the graph the line always declines.

Fecener's Law

S=C log R.

From the above research, Fechner arrived at the following law : "Sensations are proportional to the logarithms of their exciting stimuli." If sensation is represented by S, stimulus by R and constant by C, then the following equation represents the law :

Weber Fechner Law

This equation is also known as the Weber-Fechner law. The sensations and stimuli are both changeable while C is constant. This laws is an improved form of Weber's law and, is therefore, famous in both names.

Q. 49. **Write a short note on—Colour Blindness.**

(*Agra 1959*; *Punjab 1964*)

What is Colour blindness

Ans. As a general rule every person can recognise black, yellow, red, green etc. and can distinguish them. But there are also exceptions to this rule. Some people can neither recognise nor distinguish colours. This defect of the eyes is known as colour blindness, and a person suffering from it is called colour blind. A person may either be born colour blind or he may develop it later on.

Commonly, colour blindness is of three types :

Types of Colour blindness

1, Red green colour blindness : As a result of this disease, the sufferer is incapable of seeing either the red or green colours. Statistical details show that there is only one woman patient in a thousand while the percentage in the males is 3 5 to 4. This type of colour blindness is innate.

2. Blue-yellow colour blindness : This disease is comparatively rarer. It is generally believed to develop in life rather than hereditary as it is not seen at birth, though, nothing definite can be said about it at this stage.

8. Total colour blindness : As is obvious from its very name, the individual is insesitive to sensations of any colour at all. He sees things in whites, blacks on dull greys. This is rod vision, free from the sensations of any of the colours of the rainbow.

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PSYCHOLOGY OF COGNITION : PERCEPTION

Q. 50. **Distinguish between Sensation and Perception giving a full analysis of the later.**

(*Bombay 1958, 1952; Agra 1956; Benaras 1965*)

Explain fully the relation of Sensation to Perception. Can there be a mere sensation ?

(*Gujrat 1957; Karnatak 1952; Bombay 1960; Poona 1965; Muzaffarpur 1965*)

What is perception ? Give a brief analysis of perception.

(*Gujrat 1953; Patna 1969*)

Clearly bring out the nature of perception and state the factors involved in it. (*Gujrat 1958; Alld. 1951*)

"Perception is the process of knowing objects and objective facts on the basis of stimuli from the objects which affect the senses". Discuss. (*Madras 1962*)

"Pure sensation is an ideal limit." Explain this statement so as to bring out clearly the distinctions between sensation and perception. (*Bombay 1953; Punjab 1963*)

What is perception ? Explain giving examples the errors of perception. (*Baroda 1963*)

Ans. Perception is the interpretation of the meanings of sensations. In seeing a rose the various sensations of colour, smell, touch etc. are aroused. We are given to understand by these sensations that there is an object in front of us. We know from past experience that an object of this nature is a flower or a rose. We therefore conclude that we are beholding a rose.

What is Perception ?

JUDGMENT

Preception is a mental activity which acquaints us with the situation by giving us direct knowledge of it. The sensations are viewed as a whole, in perception. In perception there is not just a prefunctory acquaintance with the object, there is a knowledge of it too, whereas, in sensation, the individual does not know the object. The sensation of pink colour may have been excited either by some paper or some cotton wool or any thing else. The sensation of colour alone is not a sufficient proof of the identity of the object, and it is, consequently, not possible to say on the basis of the colour sensation that the pink object is a rose. The real meaning of the sensation is understood or revealed in the perception. Only then is it known that the sensation originates from the rose. Accordingly, sensation precedes perception. Woodworth expresses it in this way– "In general, when we speak of sensation we are thinking of stimuli and investigating the relationship of the individual's experiences to various stimuli which reach his receptors, and when we speak of perception we are thinking of objects and are investigating how well the individuals experience correspond with the objective facts."

The value of past experiences in perception

Sensation is not the only constituent of perception. Perception is caused by recognition based on past experiences. The perception of the rose is a recognition of it, as such by the perceiver. In this way, perception is an assimilation of recognition and sensation. Perception is the understanding of the sensory signs. This account should not create the impression that these processes of sensation and recognition take place step by step. In fact, all processes take place at such high speed that there is no knowledge of them. It appears that the perception takes place immediately the flower enters the line of vision. As Ward very aptly and truthfully says, "Pure sensation is a psychological myth." Even the presence of sensation is known upon an analysis of the perception. The understanding of the sensation in perception does not depend exclusively upon past experience. Time, environment, mental set, local indications, muscular sensations and unconscious traces, all play an important part in the process.

Perception and Sensation

The distinction between sensation and perception is similar to the one between a whole and its part. Neither of the two is possible without the other. Sensations are the constituents and raw meterials of perception. The perception of the external world depends upon the sensations of colour, form, sound, taste, smell, heat, cold, density, amplitude etc. Just as the whole cannot exist without its parts, in the same way. Perception is not possible in the absence of sensations. For example, the perception of the rose involves the experience of the sensations of colour, smell, touch etc. To put the same more scientifically, the analysis of the perception of the rose yields these sensations. Sensation is a presentative process.

The second difference between sensation and perception is that while the former is a rudimentary and simple experience of life the latter is the complex of these simple experiences. It includes a memory of past experiences too. For this reason perception has been termed a 'Presentative-representative process'. In the opinion of Woodworth sensation is the first response of the brain while perception is the second. Sensation is the first or at least the first conscious response born of the stimuli. Perception is the second response after sensation, and in more appropriate words it is the direct response to the sensation and only an indirect response to the physical stimulus The order of events is—stimulation, response of the specific sense organ and sensory nerve, first cortical response which is the sensation, second cortical response which is the perception. Using the old example, the presence of the rose first stimulates the specific sense organs. The sensory nerves convey this experience to areas of the cortex concerned. The sensation arises. The third difference between the two is that sensation precedes perception.

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Q. 51. **Define Perception and analyse the factors involved in it.** (*Bombay 1964, 1958, 60*; *Gujrat 1958, 65, 53*; *Karnatak 1953*)

What are the various factors that influnce perception ? Explain with illustrations. (*Karnatak 1965*)

Ans. Perception being a complex process, reveals four processes, on analysis :

Various processes in perception

1. Receptor process : The first process in perception is the receptor process. The rose, by virtue of its presence, stimulated three different receptor cells thus activating three different receptor processes.

2. Unification process : This is the second step in the main process. For a perception of the rose a unification of the different sensations is necessary. Even if the flower were to be seen or rather experienced by the eye, a unification of all the sensations from the different parts of the flower is a must.

3. *Symbolic process* : This process is the next, the third process in perception. From our daily life, we know that most things have a sentiment or an experience attached to them. A rose reminds us of the friend who created in us the interest for roses. The flower symbolises the friend. Thus every time we perceive a rose, this symbolic process makes it much more than just a rose.

4. *Affective process* : This too is attached to perception, because a flower may arouse a happy memory of a friend or a feeling of sorrow at their separation. Besides being pleasant or unpleasant, this process may also be indifferent.

The above detailed analysis of the processes of perception will make it clear that it is a complex process and not merely an aggregation of sensations. But even though it is a complex process involving many processes, its basic constituents or components are still sensations and past experience.

* * *

Q. 52. **Explain and illustrate the different laws of Perceptual grouping.** (*Bombay 1959*; *Poona 1955*; *Baroda 1964*)

What is meant by organization in perception ? What are the factors influencing it ? (*Gujrat 1964*)

What is perception ? Discuss the role of Figure and Ground in determining perception.

(*Bombay 1955*, *Gujrat 1957*, *1952*; *Karnatak 1965*)

Distinguish between sensation and perception. What are the laws of sensory organization ? (*Bombay 1962*)

How do you distinguish between figure and ground in perception ? Illustrate the figural factors in perception. (*Agra 1959*)

What is the chief contribution of Gestalt psychology ? Illustrate your answer with reference to the psychology of perception.

(*Gorakhpur 1964*)

Ans. The Gestaltists opined that perception is not the mere aggregate of sensations and past experiences. It cannot be elaborately explained on the basis of past experiences. The real form of the object is to be taken as a whole. In German the word for from is Gestalton, while in English it is Gestalt. This gestalt is very important in perception. A face is beautiful because of the effect of this gestalt. This theory on the subject of perception was first introduced in psychology by the gestalt psychologists. In 1912, Wertheimer announced, on the basis of his experiments, that the perceptions by the various sense organs, eyes, nose, ear, tongue etc. take place as a whole. The tune issuing from the harmonium is very pleasant, but if this tune is analysed into its notes, the tune vanishes.

According to the gestalt theory, perception is fixed or controlled by the psychological activities in the nervous system which result from the stimulation from physical objects. Whatever the person sees depends to a great extent upon the sensations from the perceived object.

The orchestra in film music is very attractive, because the sound of many instruments is incarporated in it. If the basic constituents of a scent are smelled the odour may be detestable, in contrast to the delightful smell of the scent in the form of a compound in its finished state.

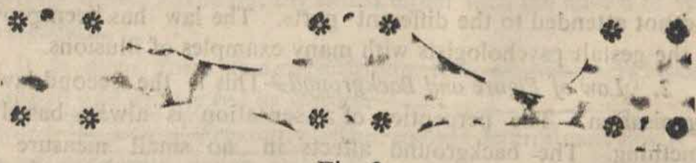


Fig. 3

The flowers illustrated above are nothing strange, because you must have seen them in many books. But do you notice anything special about them ? Of course you do, as you notice that they are divided into 3 groups of four each. Obviously, the physical position and the spatial relation of the objects influence their perception. The spatial relation depends not on the perceiver but on the perceived object. These independent sensations which, in the field of knowledge, establish the specific organisation are known as the constructive organs of the process of perception. The gastalt psychologists have derived some laws of organisation based on these. The major laws are the following—

Laws of Organisation

1. *Law of Whole*—The law so entitled is the most important among the laws of organisation and this is the opinion of its discoverers, the gestaltists. This law states that the total situation is perceived stimultaneously. Thecollection of all the sensations impresses itself on the brain of the creature as an organised

structure. The word Gestalten in the German language implies this organised structure.

The first thing that attracts your attention in the following figure is the organisation of the material, whence you observe that some asterisks have been arranged in pairs. You then turn your attention to the number in the figure and it is doubtful that you pay any attention to some particular flower. You hardly notice a solitary asterisk.

* *   * *   * *

Fig. 4

The law of whole means that the whole is noticed first in perception. This is the reason why a person sometimes overlooks minor and insignificant defects in the picture. If we make an effort, we will find that we are unable to remember the individual peculiarities of the eyes, nose etc. of persons we know very well, unless we have paid conscious and deliberate attention to them. The reason attributed to this is that we have perceived the face as a whole and not attended to the different parts. The law has been proved by the gestalt psychologists with many examples of illusions.

2. *Law of Figure and Background*—This is the second law of organisation. The perception of a sensation is always based on something. The background affects in no small measure the perception of the object or figure. In painting, the realation between the figure and the background is always kept in view and the various scenes are present against a particular background. This law of figure and background is not confined to visual perception only but it is also applicable in the case of tactual perception as well as in the case of the auditory perception. The sound of the radio heard above the incessant noise of the market place is set in the noisy background. The background provided by an orchestra for film song is such as to increase the melody of the song.

The Gestalt psychologists did not rest content with the laws of organisation but they also provided laws, based on experimental findings, which determine the figure and background. These laws are as follows :—

Determining Laws of Figure and Background

1. *The Law of Similarity*—This is the first law. Two parts similar in any way, *e. g.*, colour, figure, extension, etc., have a tendency to become organised.

When we direct our attention to the asterisks in the figure below we see an organised framework of three perpendicular and five horizontal lines. Similarly, if our attention is focused on the circles we see an organised figure in the form of four perpendicular and two horizontal lines. But, ordinarily we do not see the square drawn on the right, and even if we do, it stands out by itself a solitary figure. It is not organised either with the circles or with the asterisks.

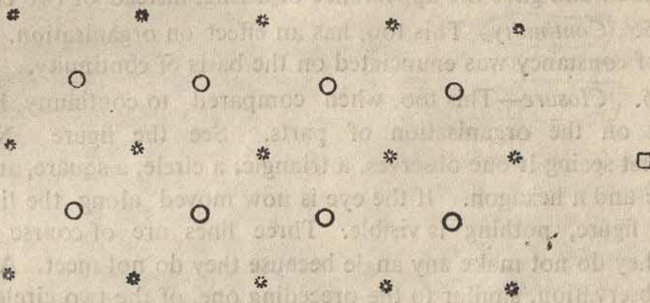


Fig. 5

It is clear from this description that similar parts become organised and are viewed as wholes.

2. *The Law of Proximity*–The scond determinant law is the law of proximity which states that objects in close proximity in time and space exhibit a tendency to organise with the result that they are perceived as wholes.

3. *The Law of Symmetry*–This is the third law. When placed in an order or symmetry, the various parts become organised into a whole and they are then perceived as such. This is more effective than either similarity or proximity.

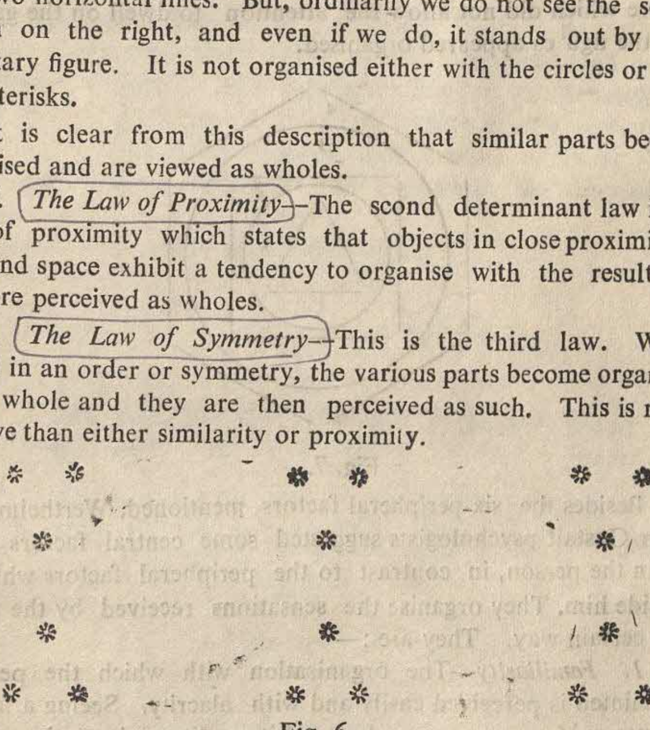


Fig. 6

4. *The Law of Homogeneity*–The fourth determinant of figure and background is the law of homogeneity. Two parts of equal

intensity or brightness are easily assimilated. In a given figure in one there were two concentric circles while in the other space in between the same circles was coloured. They were, therefore, organised and gave the appearance of a ring, instead of two circles.

5. *Continuity*–This too, has an effect on organisation. The law of constancy was enunciated on the basis of continuity.

6. *Closure*–This too, when compared to continuity, has an effect on the organisation of parts. See the figure No. 7. On first seeing it one observes, a triangle, a circle, a square, another circle and a hexagon. If the eye is now moved along the lines of each figure, nothing is visible. Three lines are of course visible but they do not make any angle because they do not meet. A careful observation, similar to the preceding one, of the two circles, the square and the hexagon will reveal that there is no figure in the picture. The illusion of figures in the first case was caused by closure which did not allow the attention to dwell on the gaps, so that the figures appeared organised.

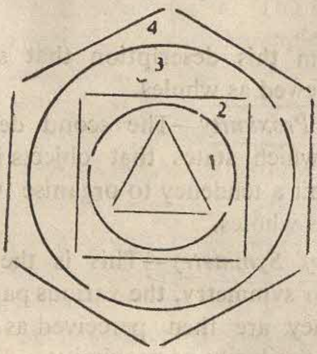


Fig. 7.

Besides the six peripheral factors, mentioned, Wertheimer and other Gastalt psychologists suggested some central factors which are in the person, in contrast to the peripheral factors which are outside him. They organise the sensations received by the person in a certain way. They are :—

1. *Familiarity*—The organisation with which the person is acquainted is perceived easily and with alacrity. Seeing a familiar picture quiz we at once understand its reality and solution and the remaining figure forms no obstacle in this. If this picture quiz is presented to some uninitiated person he will be unable to fathom

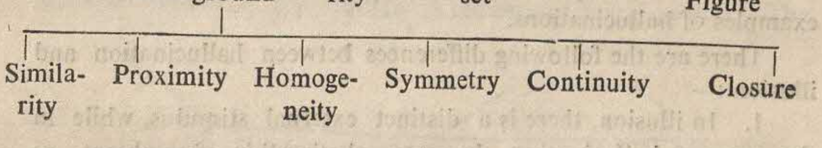
its secret. But if the acquainted person is affected by some other part of the picture, he will be incapable of recognising it, not with standing his familiarity. Therefore, the Gestalt psychologists give it as their considered opinion that familiarity may or may not affect perception.

2. *Mental set*—This is the second central factor. Mental set has a by no means insignificant effect upon the organisation of the sensations. One of the causes of mental set is habit. For example, a philosopher looks at the truths of the universe while a trader is always involved in worldly things, because they both need this for their differing occupations. Mental set may also be created by a situation a- a person, finds himself exasperated at the slow speed of a carriage. This is inspite of the fact that it is the fastest carriage. It is because of his hurry to get to his destination. The differences in mental set are the cause of the varied perception of the same thing by different people at the same time or the same people at different times.

Reinforcing Factors

The Gestaltists believed in reinforcing factors, besides the other two. These include pregnance and good figure. The supplementing of the incomplete is a mental tendency, which diverts our attention from the gaps and presents a circle. The idea of Good Figure is explained by the picture in the description of closure.

Factors in Organisation



* * *

Q. 53. **Explain with illustrations :—**

1. Figure and Ground Phenomenon. (*Poona 1959*)

2. Mental Set in Perception.

3. Principle of Closure in Perception. (*Poona 1960*)

Ans. Please see the preceding question and answer.

* * *

Q. 54. **What are illusions ? Explain with the help of examples the illusions caused by various factors.**

(*Punjab 1963*; *Agra 1960, 1959*)

Write a short note on—Illusion. (*Agra 1963, 1961; Poona 1959; Bombay 1958, 50; Gujrat 1960, 57, 55; Karnatak 1965; Rajasthan 1964*)

Distinguish between an illusion and a hallucination.

(*Rajasthan 1950*; *Bombay 1959, 58*)

Ans. An Illusion is a misinterpretation of the correct meaning of a perception. It is not a dream because the perceived object is present and it is not imagination because the object of perception is not a creation of the mind of the individual. An illusion is a wrong or false perception. A stick appears crooked when held partly under water. This is perception, of course, but not in keeping with the situation of the perceived object as it is falsified due to some reasons.

Hallucination

Difference between Illusion and Hallucination

Hallucination is dissimilar to Illusion. The vision of an oasis at a distance in a desert is a hallucination Some people see a ghost in the dark. This is another example of a hallucination. Some people relate strange incidents of hallucination *e.g.*, a woman dressed in a white saree came at midnight and sat down on my bed and she massaged my feet etc. These are examples of hallucinations.

There are the following differences between hallucination and illusion :—

1. In illusion, there is a distinct external stimulus, while in the case of hallucination the external stimuli is often absent, as exemplified by the example of the white-robed woman.

2. While illusion often happens to very ordinary people, hallucination befalls the lot of mentally afflicted, tired or intoxicated people.

3. In illusion the stimulation is usually external while the stimulations in hallucination are in the person himself, which makes the latter a kind of subjective perception.

4. The perception of the same situation is identical to every person in the case of illusion. The stick in the water appears bent to every observer. The illusion is thus a primitive organisation. On the other hand, in a special condition different people have different types of hallucinations due to diversified intoxications. Some people see ghosts, others snake while still other people see giants with swords when in an uncommonly intoxicated condition.

Distinction between Illusion and Hallucination

Illusion	Hallucination
1. The stimulus is explicit.	1. The stimulus is not clear.
2. Happens in a normal condition.	2. Happens in an abnormal condition.
3. The stimulus is external.	3. It is in person himself.
4. The experience is identical for everyone, in the same situation.	4. The experiences vary in different people in the same situation.

Types of Illusions

A comprehensive classification of illusions is made under two heads—Personal and General. The personal illusions are those which differ from individual to individual. In the dark some people mistake a rope for a snake but a person unfamiliar with a snake cannot make this mistake. On the contrary he is more likely to mistake a snake for rope The common illusions are of a universal kind and are similar in the case of every person. The railway tracks appear to meet at a distance which is an experience common to all. Geometrical illusions are similar in appearance to

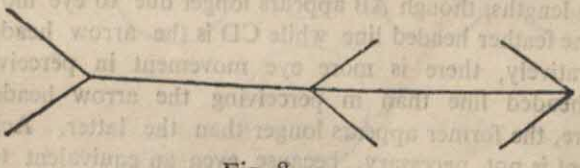


Fig. 8.

everyone. A famous example of an illusion, is Muller Lyer Illusion. The straight line is divided into equal parts at the apex of the middle angle but left part appears longer.

Causes of Illusion

There are many theories which were advanced to explain the phenomenon of illusions. The following is a collection of the causes according to the various theories :

1. Confusion : One of the major causes of geometrical and similar illusions is confusion. Confusion means the impurity or inaccuracy of perception of the various parts of a picture. Often a beautiful form tends to cause illusion by confusing. While looking at a picture, the person becomes so engrossed in that he does not notice the peculiarities of the parts or the merits and demerits of the picture.

2. Eye Movement : The movement of the eyes has a lot to do with the creation of illusions. In a given figure, there was a greater strain on the eyes in viewing the perpendicular than the horizontal line with the result that the former appeared longer.

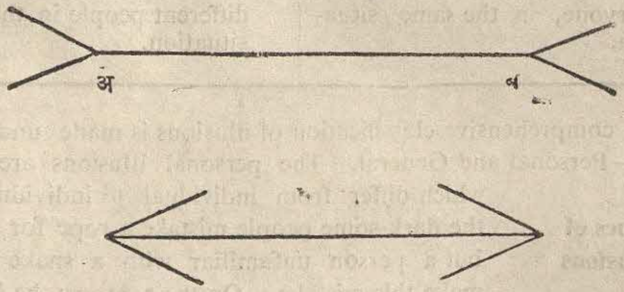


Fig. 9.

In the above Muller Lyer Illusion the lines AB and CD are of equal lengths, though AB appears longer due to eye movement. AB is the feather headed line while CD is the arrow headed line. Comparatively, there is more eye movement in perceiving the feather headed line than in perceiving the arrow headed line. Therefore, the former appears longer than the latter. Actual eye movement is not necessary, because even an equivalent tendency to it will be sufficient to cause an illusion.

3. Tendency Towards Wholes : This is another cause of illusions. This theory of illusions is the creation of the Gestalt psychologists. In perception there is a tendency to view the whole. This tendency towards whole is also known as the tendency towards the perception of Good Figures. The tendency to the perception of good figures or wholes leads sometimes to the perception of angles in the triangle which were not there.

4. *Perspective* : It is another cause of illusion, due to which every object appears three dimensional. The perception of a figure in the context of perspective is illusory.

5. *Emotion :* In an emotional state perception is often false and this causes an illusion. In fear the rope appears in the form of a snake while the scraping noise created by rats feels like the walking of thieves.

6. *Contrast of Stimuli*—Yet another cause of illusions is the contrast of stimuli. A fair face looks-more fair if viewed next to a dark face due to the sharp contrast.

In the following figure the two circles A and B are of equal diameter, but because A is surrounded by asterisks while B is

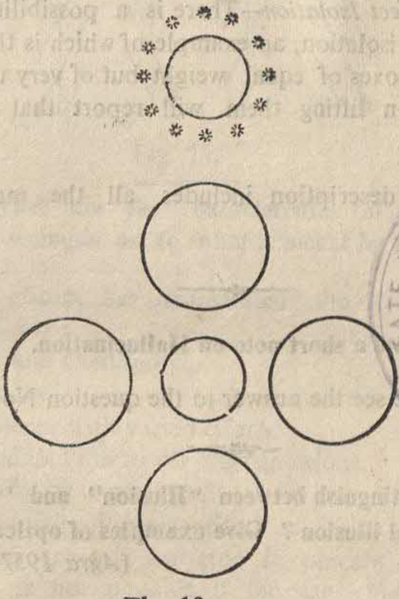


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Fig. 10.

surrounded by circles, B appears smaller than A. Many of the above mentioned reasons are at work in this illusion. A looks bigger in contrast to its surrounding asterisks but B looks smaller due to an unavoidable comparison with its surrounding circles, so that, on the whole, B appears smaller than A. B also looks bigger than A because we tend to observe the whole picture with the results that the tendency towards wholes or a perception of good figures comes into play. The perception is illusory due to an imperfact isolation and also due to eye movement and confusion.

7. *Preconception*--This, too, causes illusions. If for example, a person is daily visited at a fixed hour, the person may feel that he has heard his name pronounced, on a day when the friend has not actually put in an appearance.

8. *Habits*—Habits also cause illusion as is exemplified by the mistakes of the inexperiened proof readers.

9. *Defects of Sense Organs*—Defective sense organs cause incorrect perception and consequently an illusion. A person runniing a temperature finds sugar tastelless.

10. *Imperfect Isolation*—There is a possibility of deception due to imperfect isolation, an example of which is the Size-Weight Illusion. Two boxes of equal weight but of very unequal size are taken. A person lifting them will report that the smaller is infinitely heavier.

The above description includes all the major causes of illusion.

◆

Q. 55. **Write a short note on Hallucination.** *(Punjab 1960)*

Ans. Please see the answer to the question No. 56.

◆

Q. 56. **Distinguish between "Illusion" and "Hallucination." What is an optical illusion ? Give examples of optical illusion.** *(Agra 1957; Jodhpur 1965)*

Ans. An example of optical illusion is *Zullner's illusion*—Long straight lines which are parallel to each other but do not appear to be parallel.

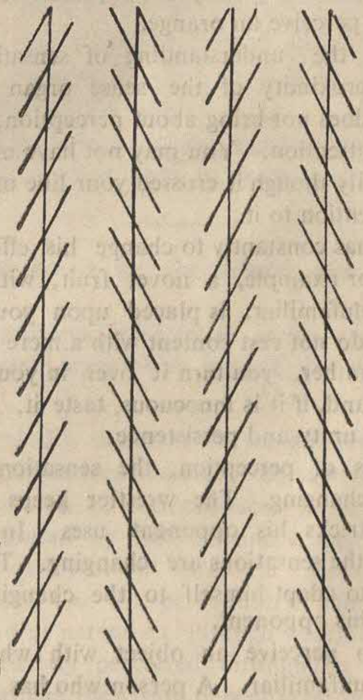

Fig. 11.

Q. 57. **What are the characteristics of a perception ? Explain by an example as to what is meant by reduced cues and ambiguous signs.**

Ans. Prof. Stout has enumerated the characteristics of perception as follows :

1. Unity and Continuity.
2. Attention.
3. Persistence with varied efforts.
4. Free adaptation to varying conditions.
5. Learning by experience.
6. Reproduction in perception.

1. Unity and Continuity

The sensations are not scattered in perception. Perception is not possible if the sensations are scattered because they would, in that case, lack meaning. The perception of an orange includes the sensations of colour, taste, smell etc., which are unseparated. There is a unity and continuity in the sensations which enable us to perceive an orange.

2. Attention

Perception is the understanding of sensations. Thus the proximity of the sense organ and the object does not bring about perception, if there is no attention. You may not have noticed the building you pass by daily though it crossed your line of vision, because you never paid attention to it.

3. Persistence with varied efforts

The observer has constantly to change his efforts for complex perceptions. If, for example, a novel fruit, with which you are unfamiliar, is placed upon your hand then you do not rest content with a mere glance at it but, rather, you turn it over in your hand, smell it and, if it is innocuous, taste it. These changing perceptions have a unity and persistence.

4. Free adaptation to varying circumstances

In some cases of perception, the sensations are constantly changing. The wrestler keeps an eye on the tricks his opponent uses. In this perception the sensations are changing. The wrestler has to adapt himself to the changing behaviour of his opponent.

5. Learning by experience

It is difficult to perceive an object with which one is totally unfamiliar. A person who has never seen a kite flying cannot make anything of the sensation of a patch of colour in the sky. Of course, if he once sees a kite, he will be able to recognise the sensation of colour in the sky and identify it as a kite.

6. Recollection

The above example shows that there was a recollection of past experience concerning a kite and that the assimilation of present sensations and recollected past experiences resulted in the perception of a kite. Recollection is, thus, a speciality as well as a sign of perception.

Ambiguous signs

Perception does not make it mandatory that the complete object be present. You perceive a friend on hearing his voice. This is because the sound is an ambiguous sign of his presence. Mostly, objects are seen in the form of signs.

The bell was an indication of food in Pavlov's experiments on dogs, while the reaction was the same as in the case of a perception of food.

Reduced signs

These are, as their title conveys, incomplete or reduced indications of the presence of an object. The droning in the sky is a reduced sign of the presence of an aeroplane. The result is an indirect perception of the approaching or present aircraft.

Thus besides the characteristics mentioned earlier, signs and indications have their importance in perception.

◆

Q. 58. **How do we see the relative distance of objects from us ?** (*Bombay 1958*)

Indicate the problem involved in seeing the third dimension. What are the different signs which suggest the relative distance of objects from us. (*Bombay 1954*; *Gujrat 1959*)

Ans. The relative distance of the different objects is known through active touch and movements. By active movements there is a direct perception of the distance. This perception of the distance is constituted by two elements : (1) Tactual sensation and (2) Muscular or movement sensation. Thus, by extending the hand or the leg, one has the perception of short distances. Long distances are however perceived through walking or running. The distance is not directly perceived through the vision. Perception of the distance through the vision depends on visual signs. These visual signs are not in nate or in born, but acquired. They include various types of shades, the differences of colours, relative motion, the definiteness or indefiniteness of the outlines etc., *e.g.*, if a tree is clearer than another, it will be perceived nearer than the other. Thus clearness is a visual sign of the distance. As a general rule things nearer to us are seen clearer than those which are at a distance. Again, if a big thing is perceived as small, one infers that it is at a long distance, similarly if the colour of an object is not bright, it is at a greater distance than when it appears brighter. Thus the different visual signs help the vision to determine the relative distance of different objects.

The relative distance is not determined either purely by movement or purely through vision. As a matter of fact both movement and vision co-ordinate in the perception of distance.

◆

Q. 59. **Describe the chief elements that enter into the visual perception of space.** (*Agra 1954*)

Ans. According to Prof. Stout the new born baby has only a vague and indefinite perception of space, and space perception becomes definite and clear with experience and mental development. Thus, the space perception is acquired and is not in-born. This is acquired through three important elements—(1) Extensity, (2) Local signs and (3) Movement. These three elements co-ordinate in the perception of space.

1. Extensity

Extension is an activity of the body while extensity is an attribute of sensation. Every space has matter and from. Extensity signifiers the material aspect of space. It is an attribute of spreading out, possessed by sensation *e.g*, the pressure of a needle on the skin is very little extended in comparsion to that of a coin. If you put your fingure in the water and again the whole hand into it, the latter sensation is far more extended than the former one. The sound of a clock is definitely less extended than the sound of a shot, just as the light of a candle has less extensity than the glare of lightening. All these examples make it amply clear that different sensations have different extensity. Thus, extensity is not an attribute of the objects, but of the sensations. According to Prof. Stout, extensity forms the material part of extension while space the formal part of it.

Thus the perception of space starts with extensity in sensations. But this alone is not sufficient since as has already been pointed out it is only the material part of the extension while the space is the formal part. Hence extensity requires space for its from. This space perception is not in-born, but acquired. It is acquired by learning the position, distance and direction of the different parts of an extended substance.

2. Local sign

The second important element in the perception of space is local signs. It is through these that the local parts of a space are distinguished. "Local signs are qualities, which vary, independent of the nature of stimulus, according as this or that part of the surface is effected." Thus, the same stimulus creates different sensations on the different parts of the body. Local signs are not a quality of the stimulus. It is because no two parts of the body are identically the same. Hence different parts have different sensations from the same stimulus *e. g.*, the sensation of the touch on the cheek is very much different from the sensation of the touch on palm. If one touches the tip of one's nose, one experiences a different sensation than if the bridge of the nose is touched. Thus sensation of different parts of the same hand are different. The sensation on the palm is different from the sensation of the hand. Again different spots of the retina have different sensations of the same stimulus. The difference in sensations causes difference in local signs, by knowing which the precise position of a sensation can be determined, *e. g.*, in a pin pricking the back of hand, the local sign is different from the pricking of the pin on the palm of the hand. By this difference in local sign, the perceiver can determine whether the pin is pricking the back or the palm of the hand. Thus the local signs differnciate the whole into the parts of which it is composed, because different parts of the whole come in contact with different parts of the body or sense organ.

But the space perception is not possible by mere differenciation of the parts, since a space is a whole and not merely a sum of parts.

3. Movement

Hence these parts should be spatially related. This is done through active movements. To give an example, when a blind man or a man with closed eyes, perceives a table through touch, he moves his fingures gradually, from point to point on the whole table. Through these subsequent movements the fingers pass through many points and hence different local signs. Thus the movements relate the different points on the table and a definite arrangement of different parts is established. Along with tactual experience in the movements, there are muscular sensations due to the movement of muscles etc. The series of positions on the table and the series of muscular sensations are experienced together and so they get closely related.

Thus space is perceived through extensity, local signs and movement. In this spatial perception the role of eyes is most important. It supplements touch and sometimes even supersedes it, though space perception starts with touch. As a matter of fact space is perceived through the co-operation of both touch and vision unless the person is blind.

* * *

Q. 60. **What is Perception ? How do we perceive time ? Explain.** (*Gujrat 1959; Karnatak 1957*)

Ans. For the 1st part of the Qs. see Qs. 48.

How do we perceive time ?

Man perceives time through duration. Immediate or instantaneous sensations seem to have no duration at all. Time interval between two events is appreciated by the duration between them. This duration should be sufficiently wide to be perceived. Only the present can be perceived. The consciousness of 'no more' goes with the cognition of past while the consciousness of 'not yet' accompanies the cognition of future. There is only relative distinction between past, present and future. The consciousness of time is very much affected by the number of events during a certain interval, the sum total of accumulated experience and other cues and signs.

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8

MOTIVATION AND INSTINCTS

Q. 61. **What are motives? Explain their importance and classify them giving suitable illustrations.**

(*Banaras 1957*; *Agra 1963, 1960*)

What is meant by motivation? Explain its significance in learning by means of examples.

(*Patna 1961; Agra 1959*; *Poona 1965*; *Banaras 1964*)

Ans. In the words of Cuilford, "A motive is a particular internal factor or condition that tends to initiate and to sustain activity." Thus motivation includes all those internal conditions which begin an activity or sustain it. Motive is different from stimulus because it is there even before the stimulus. In the absence of internal motive there cannot be any response, however intense the external stimulus may be. The word motive includes all the internal and external factors that initiate an activity. But in psychology motive includes only those factors which control the activity of the living being. It does not include mechanical or reflex actions because they depend on the physical structure and the external environment. Such mechanical behaviour is observed in less developed animals. On the other hand, in the developed animals their changing physical and mental conditions control their behaviour. It is said that the horse can be taken to the water, but no amount of effort can make it drink. Inspite of the presence of the water, the horse will drink only when it feels thirsty. The motives depend on the changing physical conditions and past experience. A burnt child dreads the fire because the memory of burning is always present in his mind. Thus it is clear that motivation explains the 'why' of behaviour. Why a certain animal or man behaves in a particular way can be known by an inquiry into his internal motivating factors. Sometimes this "why" can be inferred from external behaviour also. The influence of the sex motive can be inferred by a particular behaviour of a pair of pigeons. The cause of a particular behaviour towards the child shows tender motive in the mother. There can be one motive behind different actions and different motives behind the same action. A man can throw a rupee towards a beggar due to disgust and also due to pity. A soldier can save a pe son from drowing due to altruistic motive and also to take him to gallows. Psychology explains the real motives behind the behaviour and experience of the individual and living beings.

Motivation in learning

The motivation has much effect on learning. In the absence of motivation either there will be no learning or very little learning and the learned activity shall be forgotten very soon. On the other hand, sufficient motivation will release energy in the process of learning. The motive gives energy for the continuation of the process of learning. It is due to motive that the student goes on studying attentively for weeks, months and years. Just look at a boy, desirous of learning how to cycle, and you can very easily see the fact of motivation in his activity. He tries to learn cycling with perfect attention and with all his energy. He fails several times and gets cuts and bruises, but he does not cease to make effort. If he does not succeed one way he adopts another way. So long as he does not learn cycling, a restlessness is seen in him so much so that he often dreams of cycling. After he learns cycling, he seems to be very happy and is seen cycling now and then, here and there. This importance of motivation in learning has been widely utilised in education. A good teacher tries to excite motives in the students before beginning some new chapter or before asking them to learn some new work. As he succeeds in doing so, half of the work is over, because now he has only to guide the child, the rest the child learns himself. Learning is a voluntary activity. The more difficult a subject of learning is the more power will be required to learn it and consequenty the more motivation is required for it.

Motivation is not only required in teaching, but also in learning for oneself. Hence an intelligent student develops motivation in his studies. By motivation the learning becomes active. In it, the interest and attention are spontaneous, more work is done in less time and a thing learned once is remembered for ever.

Motivation has the same place in learning as energy in mechanical function.

For the classification of motives see next question.

* * *

Q. 62. **What are the major classes of human Motives ? Explain with illustration.** *(Gujrat 1964)*

Define motive and mention its vasieties. Indicate some consequences resulting from the conflict of motives.

(Poona 1959; 1960)

What are our chief social motives ? Do you think they are mere extensions of our biological needs ?

(Agra 1964, 1961; Benaras 1964)

What are motives ? Explain the distribution of motives into organic needs, emergency motives and objective motives.

(Madras 1964)

What are organic motives ? Sketch briefly the working of hunger and sex in human beings. *(Mysore 1962)*

Classes of Motives

Different classifications of motives have been effected from different view points, *e.g.*, physiological, Innate and Acquired, Personal and Social. They have been given different means also *e.g.*, needs, motives, propensities etc. The theory of instinct is included in this. Two types of motives are the most popular—logical and psychological needs, and personal propensities while the acquired needs account for the social and the learned personal needs.

Woodworth has divided motives into the following three categories :

1. *Organic needs*––Those motives which are aroused by the bodily conditions, *e.g.*, hunger, thirst etc.

2. *Emergency Motives*––Those motives which are aroused when the condition of the environment demands a strong and quick reaction, *e.g.*, the motive to escape.

3. *Objective Motives*––The object of these motives is impressionistic behaviour with people and the objects in the environment. This class of motives is quite comprehensive.

Other psychologists have classified motives under primary and secondary needs, while some classify them as innate and acquired. The latter classification will be the one on the basis of which the following description will be made, because it is the simplest classification.

Internal Motives

Internal motives are not learned, they are natural. They are the primary, vital, physiological and biological needs, which the person brings with him upon his entry into this world. Their fulfilment is indispensable and of prior importance. They are also necessary for the protection of life. The equilibrium of the body and the mind is disturbed if they remain unsatisfied and it can be restored only when these needs are satisfied. The microscopic cells or fibres of body lead the psychologists to the hypothesis of drives which are internal motor activities.

Specific Organic Needs

First, mention will be made of the specific organic needs which may be described as animal drives. They are found both in men and animals, the only distinguishing feature being the mode of their fulfilment. Some of the major ones are:—

1. Homeostasis—This is a specific organic need, in which the body tries to keep the condition of blood under control, because the equilibrium of the body is disturbed if quantity or proportion of water, salt, oxygen, carbon-di-oxide, acid, sugar, protein, fat and glandular excretions is in any way altered. The body is anxious to maintain the normal balance. This balance needs water, oxygen etc., from the environment. Thus, homeostasis is the origin of many activities, in which the nervous system takes part. Many psychological motives, are also conceived in homeostasis. The individual knows the means of satisfaction of some needs while knowledge of other means is supplied by exerience and learning. When the person feels hungry due to some biological inefficiency, for the first time, he has not the least inkling of the sense from which his satisfaction is to come. But, when once his hunger is satisfied some way or the other, he discovers the means by which he may allay his hunger in the future.

2. Regulation of temperature—This is the second specific need of the body. The hypothalamus in the brain is an automatic machine which regulates the body temperature so that there is never any very substantial difference. Perspiring, trembling, lighting a fire, donning clothes, fanning oneself, installing cooling systems etc., are all perceptible or imperceptible activities caused by the hypothalamus.

3. Sleep—This is third specific need of the organism, the importance of which cannot be denied. The activity of sleeping consumes the individual's greatest share of time. Sleep is the natural reaction of the organism to fatigue and an absence of stimuli. Its centre, too, is the hypothalamus which induces sleep, when acted upon chemically. Experiments indicate that a person is not completely inactive in his sleep. Generally he alters the posture of the body every twelve minutes or so. Sleep is deepest during the first few hours. It gradually becomes lighter as time passes. Every person has individual and unique habits of sleep but this does not mean that sleep is a habit. If a person stays awake indefinitely his interest and energy become lax even though he may complete many of his activities as usual.

4. Hunger : The stomach makes some motions when it is empty, which may vary in frequency from 10 a minute to 20 or 25 a minute.

Detailed investigations and experiments have shown that there is a close relation between blood chemistry and hunger. The reduction of the sugar in the blood starts hunger-sensations, while its excess reduces the hunger. If blood is transferred from a hungry dog to another dog, the latter starts feeling hungry. But it cannot be said that blood chemistry is the only factor upon which hunger is dependent, because the deficiency of proteins, fat, carbohydrate also results in hunger. Mostly, man or animal demands some particular type of food and not just food, when he is hungry. The choice is regulated by the deficiency in the body. During pregnancy, a mouse needs about twice the normal quantity of salt. It has been adequately demonstrated by experiment that the animal has not to be told the type of food to be consumed by it. When the feeding was done by the Cafeteria Method, in which the child may eat anything he likes, in any way which he may prefer and as much of it as he likes, the children soon started to pick out the food by mere vision or by smelling. This experiment proves that children develop properly if only they are fed in accordance with their wishes. Generally there is no difference between the food suggested by doctors and food individually selected. The animals, e. g., rats have individual preferences which changes with alterations in bodily conditions. The choice of food is neither by trial and error only nor by the motivation of bodily needs exclusively. The physiological needs furnish a motive for the selection of food by trial and error. Human beings as well as animals eat more if they eat in a collective group. The taste, smell and shape of the food have a marked effect on its selection by human beings. As a general rule habits are important in eating though these habits may be violated under certain circumstances. There are many harmless things which people do not like to eat. The rejection of a particular food by some individual does not indicate that it is harmful for him. In animals, too, the hunger may be due to causes other than the biological needs. In experiments on hen it was found that she starts eating merely on the sight of a heap of grain, she stops eating but starts again if the grain is first removed and then replaced. She also starts eating if she sees other hens doing so, even when she has no appetite. A similar type of behaviour may be seen in human beings.

5. Thirst : Thirst, too is a specific organic need, similar to hunger. A person is very restless and active if he is denied water for any length of time, even though every other need is satisfied, and this is an unmistakable sign of some deficiency. The throat and the mouth become dry due to the diminution of water in the salivary glands which is the result of a reduction of water in the blood. Consequently, there is a strong desire to imbibe water or some liquid. Due to some social reasons, man does not feel restless even when extremely thirsty. Thirst cannot be definitely or indefinitely quenched by a mere wetting of the mouth and throat. This proves that the cause of thirst is not the drying up of the mouth and throat but rather the decrease in the normal quantity of water in the blood. The dogs, in experiments, drank the water they needed. This ratio seems to be the result of the balance maintained by the pituitary hormones.

Besides the specific organic needs mentioned above, the excretions of the waste products in the from of perspiration, urea etc., and the need for physical exercises is felt in men as well in animals. They are both important for the body. The physiological needs mentioned so far are of vital importance for the life of creature and are consequently vital physiological motives, and they have their origin in some organic condition or other.

Some physiological needs will now be described whose stimuli and the resulting reaction may take many varied forms. A delay in their satisfaction, or incomplete satisfaction need not be of fatal significance for the individual. In case the natural means of satisfaction are not available, other means may be adopted. Some of the more important among the less specific needs are :

1. Sex : Being related to the sex glands, it is an organic need. It is a means of giving birth and sustaining the species. It is known by the seasonal menstrual changes in the female mammal. The manifestation has become very complex in view of the restrictions placed upon men by the society, though its importance cannot be denied. Sigmund Freud, the founder of the school of psychoanalysis, believed the sex motive to be the most important and comprehensive motive of all.

The inception of the sex motive is due to the excretion of a gland In the male it is caused by the excretion of the sex glands, while in the female due to the ovaries. The circulation of the blood carries it to the brain, the resulting behaviour being of a type not normally observed. The normal activity due to this motive is an interest in the members of the opposite sex, and a particular type of behaviour towards such, the goal being the mating of the male and the female. In the lower species, the sex activity is related to the seasons, being the highest in spring when the daylight is of a longer duration. The light has an effect on the brain via the eyes, and it excites the excretion of the pituitary. This excites the sex instinct.

2. Maternal behaviour—Maternal behaviour is a symbol of the love and affection a mother has for her child. It is believed that this form of behaviour is the consequence of a pituitary excretion, the prolactin which affects the brain and causes specific type of behaviour in the mother towards the child. She makes many and varied attempts to protect and look after her children, to get near them when they are separated from her. Prolactin, when injected, created maternal behaviour in a hen who had no chicks of her own. It is seen sometimes that the behaviour of the female towards her children is not exemplary. She deserts and sometimes even devours them. It cannot be concluded from this that the maternal drive is completely absent but all that this indicates is that there is a more powerful motive at work in the female at the time. Another reason for this extra-ordinary behaviour on the part of the mouse may be the deficiency of some material, a deficiency capable of being removed by the eating of the offspring. A mother, fearing disgrace or pursuing some other motive of prudence, may abandon a child without it being essentially assumed that she has no maternal love or that she is indifferent towards the parting.

The maternal behaviour in animals as well as birds presents many complex activities. Maternal behaviour, being similar to sexual behaviour in as much that it is innate and that it has a definite pattern in the species, is not the only aspect because the existence of the maternal instinct may also be accepted. The maternal behaviour becomes more specified with every increase in the level of development in species.

Maternal behaviour in human beings

Maternal behaviour is compared with sexual behaviour because the presence of the maternal instinct is as unacceptable as the existence of the mating instinct. Besides, the existence of such an instinct is not clearly proved. A desire for children before they are born is one thing and their care and a love for them after they are born is another. In the present age, many educated, prosperous women consider children a mere burden. And if, in some way, a desire to give birth to a child is conceived the care of the child is entrusted to a nurse. Consequently, the desire for children, in women, is not universal and neither is the desire for their care. Nearly 75% of the 87 pregnant women, who were subjects in an experiment in U. S. A., replied in response to a question that they were not happy at the prospect of having children. About 66 percent of another group of 66 pregnant women confessed that they had no plan about their children. The very substantial dissimilarity between the Indian and the American culture does not admit of the application of these experiments in identical form in Indian conditions. But if the westernized Indian ladies are the subjects of the experiments, the results will not differ to any great extent. If the element of culture is eliminated, it is unbelievable that the maternal behaviour is innate or instinctive. This fact is further strengthened by the fact that there is an intimate connection between maternal behaviour at an adult age and doll playing in the childhood. Many women have children because their husbands want them to other because they feel it a necessity, while other women feel that a childless woman is looked down upon by the society. Some women procreate because they feel that it is conventional. Those women who have children purely because they were motivated by the maternal instinct are not many. Another proof of the absence of the maternal instinct in women is the fact that many children are devoid of the indispensable love of their mothers. On this point, there is a great difference among them. The patterns of maternal behaviour vary with the culture and the individual, a major part of which is learned. The girls learn their maternal behaviour by observing the behaviour of their parents and by playing with dolls, and even then there are very few successful mothers. In reality, the maternal behaviour in human beings is learned to so great an extent that it is difficult to accept it as motivated or instinct-originated.

Apart from the needs detailed above, there are some internal needs which are common to living beings. Woodworth calls them emergency motives, but they are also called general needs. The major ones are—Escape, Combat, Mastery motive etc.

General Needs

1. The urge to Escape—The urge to escape is natural in danger when there is a possibility of physical damage. This urge is active in a dangerous situation. We jerk our hand away when it is pricked and similarly, an animal shrinks his foot if it steps on a thorn. The tortoise withdraws its neck back into its shell on the slightest noise. The natural reaction to danger is the preparation for protection against it.

The signals of approaching danger are of importance in the urge to escape. These signals are different for different animals and are received from diversified sources. They are innocuous and the danger lies in the comprehension of their meaning. An interesting experiment was carried out to test this. A nonpoisonous snake was given to people to touch. Children below two years did not show any fear while three-to-four-year old ones tried to get away from it. Older children ran away from it and college students definitely exhibited fear. In this way, children do not fear many things of which the elders are afraid.

The meaning of these indications is learned either by association or by controls. Besides association, children feel frightened if they see their elders similarly afflicted. There is a famous experiment conducted by Watson on this subject. A one-year-old lad named Albert played with white rabbits, dogs or rats fearlessly. The boy was frightened by the noise of a hammer stricking an iron rod just as experiment. The boy stepped back in alarm. When this process was repeated over and over again the child became frightened of the white rabbit, and started running away from it. He was so such affected by this incident that he started running away from the dog too. The conditioning in understanding the meaning of the danger is quite obvious. The child associated the noise with the animals and took the animals to be the signs of the danger. Comparatively more intelligent children did not associate the two. The hen screeches loudly on perceiving the kite and hen chicks are scattered. In the human beings too, a similar phenomenon may be observed. It is amply illustrated by the crying of the child who has seen his mother crying and screaming. The children learn to be frightened by lightening, rain or storm from their freightened elders.

The fear so learned gradually takes root in the mind of the child and becomes difficult to eradicate but sometimes it is the same conditioning that is used to remove these groundless fears. For some unknown reason a small boy, Shiboo by name, was frightened of rabbits. The fear was removed by conditioning. The experimenter placed a caged rabbit at a distance which did not disturb the tranquility of the boy and induce him to abandon his supper. The cage was gradually pushed nearer till the cage was very near the boy and when he got used to the spectacle the cage was dispensed with. Then the boy started playing with the rabbit even when he was not eating. The boy thus ceased to associate the rabbit with the interesting condition of eating and forget his fear. This activity of fearing due to association is comparatively more in the young than in the adults because they do not associate any and every object with fear. An adult does not run away at the sound of an engine and neither does he associate, like a child, any noise with any object. But on the other hand, an educated and grown up person, by virtue of his understanding sees danger in objects appearing harmless to the uneducated or the child. There is no organ or gland which may give birth to fear. Some parts of the brain, do, of course, act in a fearful situation but the stimuli are generally external. These stimuli include the possibility of pain, injury or some other damage.

The means of escape to which a person may resort are not the same. To take an example, some people daydream in order to escape from danger, and they do so through the medium of imagination. The person afraid of other people in society begins to love solitude. Some people become ill when they want to avoid some stern duty. This method of escape is employed by soldiers, because some of them become ill as the danger of proceeding to the war makes itself manifest.

2. Combat Motive--This motive is universally applicable. Its strongest stimulus is resistance. Commonly it is a normal experience that if you approach a cat, she runs away from you, but if all the avenues of escape are blocked she will bare her teeth and perpare to attack. If you restrain the movements of a child by holding its hands, legs, head, etc., it will go red in the face, screaming and struggling. Remove a chick from the hen, make fun with an irritable person or obst uct the culmination of the motive in an animal and the struggle will start. Usually the struggle is a reaction to the obstruction in the fulfilment of the motive,

The aim of combat is to remove or overcome the obstacle. An internal, physical and emotional confusion persists till the person either gets rid of the obstacle or overcomes it. The pattern of the struggle or combat does not conform to any rules and is therefore dissimilar in people. The same rule applies to the instruments used in action, The animals with long nails find in them admirable instruments or weapons for attack or defence. Usually, it is the male who does the fighting. He fights with members of other species and fights with members of his own group for the female or for his own food. The excretions which are the specialities of the feminine, probably suppress the element of combat. Some animals and men threaten before they fight. The monkey's threat is famous. Some animals achieve this by showing their teeth, others by screaming, while still others do it by thumping on the chest. Age, intellect, social and cultural factors alter the methods of combat. A civilised man manifests his combative tendencies indirectly. His enemity continues over the years and he adopts indirect methods in revenge. One form of combat, which is very popular or common in civilised societies, is the fighting of cases in law-courts. It is difficult to accept combat as instinct, drive or an internal motive whose sole aim is fighting. The tendency of competition may be innate but combat is usually seen actively when the fulfilment of a motive has been hindered. Combat is the result of anger but sometimes anger is expressed in some orher way. An employee, rebuked by his senior cannot talk back to him for fear of losing his job, so he gives vent to his anger on his wife or children. Our tendency to combat is sometimes excited by the sight of others fighting. Playing or watching a game in progress or boxing in films are all outlets for the tension of combat. In the family, the parents restrict many tendencies of the children thus generating a feeling of ill-will in them, due to which the children worry the parents who feel disgusted with their children. Brothers and sisters compete with each other for the love of their parents. In the same way, the husband and wife also quarrel on some point or the other. A harmless outlet for these tensions is necessary to preserve the peace of the family. Play is adequate for the children. The elder people should be given an opportunity to have their say because it is better to get it off their chests.

Besides in motives mentioned above curiosity, play, humour etc., is innate behaviour.

Other Innate Motives

3. *Curiosity* : This is a fundamental motive which has no particular bodily base. When a creature is confronted with an unfamiliar object, a desire to know or understand is naturally generated. In human beings, besides the tendency towards curiosity a feeling of surprise or curiosity is also observed. Everybody has a desire to know new things and see new places. A child, given a new thing, will turn and twist it to gain some knowledge of it. A child is always ready to ask questions and his questions are endless. You may reprove him because you are tired of his questions but he will never be exhausted on this account. If the child's curiosity is not repressed, he will continue his search till he has acquainted himself with his surroundings. These are the children who become great inventers, scientists and explorers if they preserve their curiosity tendencies to adult age. This is an important motive from the biological point of view. It makes the creature become familiar with his environment.

4. *Urge to play* : As a general rule, the urge to play is present in almost everybody. It is an innate tendency which has no specific centre in the body though it does depend upon the general condition of the body. A tired or convalescent person does not relish the idea of engaging in a game. The desire to play is felt only when the person has adequately rested and is healthy. A game is played when the person has enough energy and is not forced to expend it on some activity related to his livelihood. Children like to play more than the grownups because they have practically none of the problems of life to struggle with.

The pattern of playing varies with the culture or the race and with the individual in the race. Some of the forms which playing takes are jumping, chasing, catching, fighting, sexual behaviour, construction and turning and twisting objects. Often, children are seen copying their elders at play. It is incorrect to interpret this to mean that games are a means of preparation for older life. Games definitely assist the activities of older life by strengthening the tissues and making them efficient to carry on some activities. But it cannot be accepted that games aim at the preparation for the life in future. The fundamental motive is the need for physical exercise and it may be expressed in any form, being directed by the environment in its expression. The tendency to gain superiority or the sex drive may be the alternative causes for the urge to play.

5. *Humour or laughter*: The tendency to laugh is nearly universal in people, and it is a special tendency present in human beings only. The action of laughing in people does not vary very much but the mirth raising situations do vary with the individual. No rule can be laid down to state the incident capable of raising laughter in a certain person. Some people are amused if they see some person slipping on a banana skin or people falling in a cycle accident or horse-carriage overturning, while other people may see nothing funny in these incidents. But leaving aside individual perversions, there are some things on which people generally do laugh. For example, we laugh at another person's mistakes, or we are amused on perceiving another in an embarassing position. It is not uncommon that boys laugh when the talk of girls who, in their turn not harbouring any charitable feelings for the boys, laugh at the expense of the boys. Grownup boys and young people are vastly amused by sexual jokes. It is seen sometimes that people laugh more at broad and indecent jokes. Psycho-analysts give it as their considered opinion that such type of talk being prohibited and suppressed by society a tension is created the slackening of which, on hearing such talk, leads to laughter. This does not lead one to say that every type of humour is a safety value for the evacuation of suppressed elements of the sexual tendeney. It is, of course, established that there is a lessening of tension in laughter, and due to this view point, the safety value theory is the best. Laughter is a tendency, similar to games, to get rid of tensions. It is natural to feel light and delighted after laughing.

Acquired Motives

So far we have treated of innate motives which are also called primary motives because they are directly related to the biological needs of the creature. These motives are active almost throughout life though the methods of satisfying them are modified with age and experience. These motives are universal because they are the creatures' heredity. A major share of them is directly or indirectly related to the physiological conditions of the creature. Though most of motives rely upon the physical condition of the creature it is not correct to conclude that all his motives are physical or internal. The internal motives are connected with the creature but there are some motives which are related to objects out side the creature. Woodworth called them objective tendencies. Many motives are the result of social effects. Gregariousness is a social motive A child is unable to fulfil his physiological needs unaided. He learns the ways of their fulfilment from others. Thus, a developed individual fulfills, his needs in accordance with the laws of society. This leads to a socialisation of his needs, an activity in which the individual develops many needs and motives the physiological causes of which are difficult to trace. An example of this is the difficulty in identifying physiological causes with the lust for money, search for fame, literary and aesthetic tendencies of the modern man. It is apparent that many of the motives and needs of individuals are learned in society. They may be called secondary and non-vital motives. Some learned motives, which are found in most people in a greater or lesser degree, are now described. These being numerous, only the major ones will be dealt with here.

1. Praise and Blame—The tendency to win the praise and avoid blame motivates human behaviour in nearly all societies. Every person wants to be praised by other people even though he may not like to be praised by them directly. Similarly, no one likes to be defamed or humiliated by others. Generally the thought of right and wrong is liked with praise and blame. A person learns praise worthy behaviour and avoids a detestable one from his childhood. A child fights shy of punishable behaviour but gladly adopts behaviour which may earn him the love of his mother. Later this tendency takes the form of praise and blame because praise is fruitful and blame is harmful. Even a person indifferent to the derogation or flattery of the society pays great attention to the praise or blame accorded to him by his own conscience which is the product of thoughts of the socially proper and improper. The experiments carried out to study the effects of praise or blame establish that they definitely effect the person. The effect of praise is comparatively more than the effect of blame.

2. *Mastery Motive*—Alfred Adler has accepted the mastery motive to be the most important motive in human life. According to him man tries to master others, in every field of life. Nietzsche believed the '*Will to Power*' to be the major motive in life. According to Darwin there is a struggle for existence at every step in Nature and it is the fittest who survives It follows that every creature tries to attain power. Creatures living in groups have a leader who maintains his masterly position by force. Besides the leader there are people who are situated at different levels. The person who will replace the leader is also decided upon. Mastery may be ascertained by age, power or intelligence and these criteria of mastery change with the time and place. In animals, usually, it is the power which is the criterion of mastery.

As a consequence of the mastery motive a competitive tendency and a tendency to rivalry is found in most societies. When competing, a person invariably puts in greater efforts, and even more so when the competition is personal rather than in groups.

But these facts cannot go uncontradicted. The mastery motive, being acquired, it is not inevitable that it be found in every society. The tendency of self assertion is so rare in Arapesh of New Guinea that it is an abnormality there. This tendency is uncommon in Zuni and Hopi Indians. Among these people the best man is not allowed to participate along with the other competitors. In observation it was seen that the Zuni children do not try to get ahead of others in a question competition and hesitate in showing results better than the others. Why are they so different from other societies in this respect ? The elderly people in their society discourage the tendency of self assertion in infancy whereas this tendency is encouraged right from the start in other societies. In comparison with the western society, the Indian child is taught to live peacefully, believe in God and depend on luck. Therefore an Indian is comparatively less active than a member of the western society.

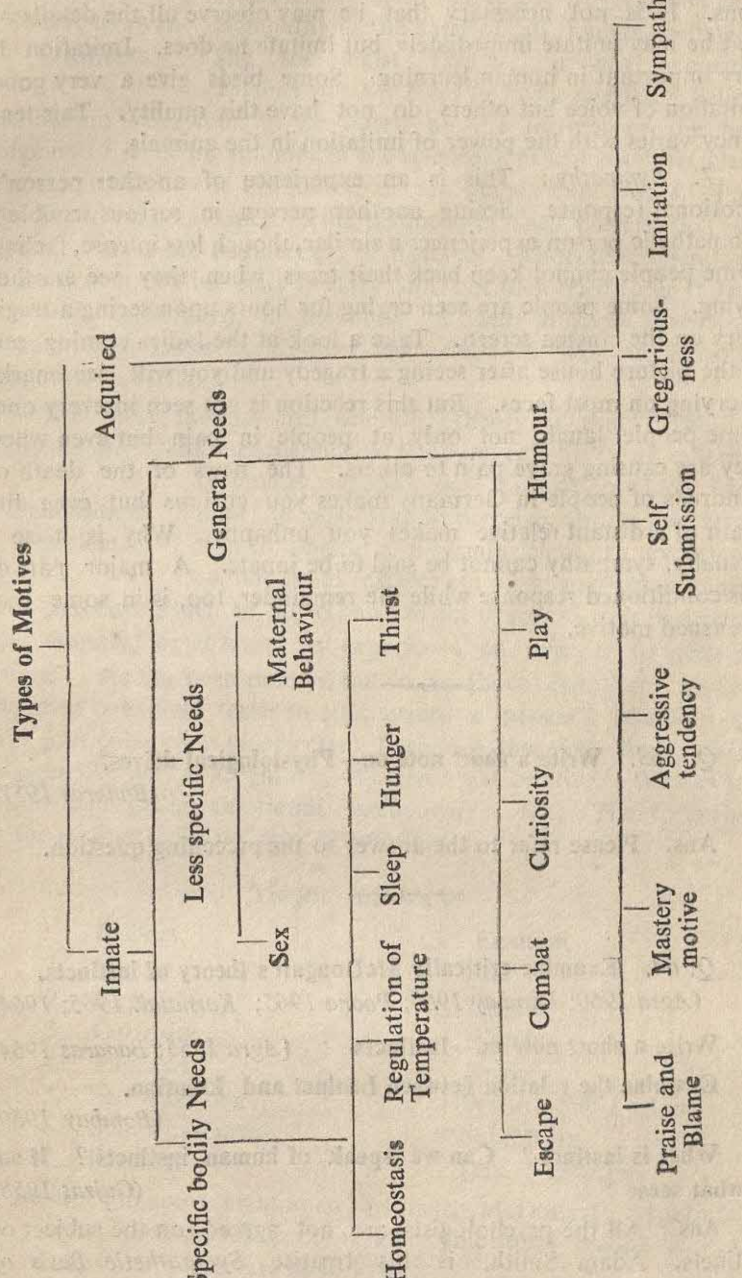
3. *Aggressiveness*—This is an expression of the mastery motive. There is a great diversity in this tendency which is the result of

the different existing ideals and rules in a society. In India, for example, the Nagas are a blood thirsty tribe who are called Head-hunters while many other Himalayan tribes are very peaceful. In a civilised society murder is considered a wrong and no woman marries a murderer but among the Nagas it is that person who does not cut heads who finds it difficult to find a bride. The Arapesh tribe of New Guinea discourages the aggressive tendencies, while on the other side, the Mundugumors encourage it from childhood. Therefore, the aggression tendency, like the mastery tendency, cannot be accepted to be innate and universal. They are acquired tendencies whose existence depends upon social conditions.

4. *Self Submission*—Some people have accepted as natural the tendency of self submisssion, as opposed to that of self assertion. Undoubtedly, the child has many occasions for self submission, being helpless before his elders. These childhood impressions are important and lasting but it is correct to call the submission tendency a learned tendency because it is usually learnt in the family or the society. Being comparatively weaker, women have a greater tendency to self submission but in some South America sea islands the women are the leaders and the men follow them in political and economic matters. Thus, this tendency depends on the social pattern. It varies in degree in different persons, and it may even be completely absent.

5. *Gregariousness*—This tendency makes a person want to live in a group with the rest of the tribe. This tendency is expressed in the form of herd behaviour in animals. For this reason, goats and sheep live in flocks, though this tendency is not present in all animals. Thus it is neither internal nor universal, and also not self generated. This gregarious tendency is not found in every person. While many people live in group there are some who detest. This tendency is in reality, learnt, which includes the advantages of a society. The person gets food, drink, accomodation easily, in a group, and he is enabled to satisfy his many tendencies.

6. *Imitation*—Though imitation is seen very much in the human beings it is not compelling. Even if the existence of any such instinct is given credence its field is very limited. It is common knowledge that a child learns his activities, habits and behaviour by imitating others, sometimes imitating growrnps without a knowledge of what he is doing. The power of imitation


Types of Motives
Innate
Acquired
Specific bodily Needs
Less specific Needs
General Needs
Homeostasis
Regulation of Temperature
Sleep
Hunger
Thirst
Sex
Maternal Behaviour
Escape
Combat
Curiosity
Play
Humour
Praise and Blame
Mastery motive
Aggressive tendency
Self Submission
Gregariousness
Imitation
Sympathy

is stronger in humans because they can make more minute distinctions. It is not necessary that he may observe all the details or that he may imitate immediately but imitate he does. Imitation is very important in human learning. Some birds give a very good imitation of voice but others do not have this quality. This tendency varies with the power of imitation in the animals.

7. *Sympathy*: This is an experience of another person's emotional response. Seeing another person in serious trouble a sympathetic person experiences a similar, though less intense, feeling. Some people cannot keep back their tears when they see another crying. Some people are seen crying for hours upon seeing a tragic story on the cinema screen. Take a look at the ladies coming out of the picture house after seeing a tragedy and you will see marks of crying on most faces. But this reaction is not seen in every one. Some people laugh, not only at people in pain but even when they are causing grave pain to others. The news of the death of hundreds of people in Germany makes you curious but even the death of a distant relative makes you unhappy. Why is it so ? Actually, sympathy cannot be said to be innate. A major part of it is conditioned response while the remainder, too, is in some way a learned motive.

◆

Q. 63. **Write a short note on—Physiological drives.**

(*Banaras 1957*)

Ans. Please refer to the answer to the preceding question.

◆

Q. 64. **Examine critically McDougall's theory of instincts.**

(*Agra 1960*; *Bombay 1960*; *Poona 1965*; *Karnatak 1965*; *1964*)

Write a short note on—Instincts (*Agra 1955*; *Banaras 1964*)

Examine the relation between Instinct and Emotion.

(*Bombay 1960*)

What is instinct ? Can we speak of human instincts ? If so, in what sense ?

(*Gujrat 1958*)

Ans. All the psychologists are not agreed on the subject of instincts. Adam Smith, is his treatise *Sympathetic Basis of*

Controversy on Instincts

Human Activities', has accepted an instinct called Sympathy as the basis of all human behaviour. The sociologist Trotter, in has exposition. '*Instinct of the Herd in Peace and War*' believes all human behaviour to be based on the instinct of the herd. Sigmund Freud, the founder of the science of psycho-analysis, claims the sex instinct to be the source of all human endeavours. Later on, Freud made mention of the instincts of self-preservation and death. James has enumerated 32 instincts. Thorndike mentioned more than a 100 instincts to start with, but then tried to limit them to 40. L. L. Bernard, in his book '*A Study in Social psychology*' counted 110 instincts. Drever has classified the instincts as Appetitive and Reactive.

Definition of Instinct

The most famous and scientific theory is that of William McDougall. Definning instinct, McDougall calls it "····an inherited or innate psychophysical disposition which determines its possessor to perceive, and to pay attention to, objects of a certain class, to experience an emotional excitement of a particular quality upon perceiving such an object, and to act in regard to it in a particular manner, or at least, to experience an impulse to such an action." As has been pointed out in the above definition, instinct generated behaviour tends to concentrate a person's attention on some particular class of objects. There are therefore three stages in instinctive action–Cognitive, Affective and Conative. With every instinct a particular emotional excitement is felt. The following are the instincts and the related emotions :

Major Instincts

Instinct	Emotion
1. Escape	Fear
2. Repulsion	Disgust
3. Curiosity	Wonder
4. Pugnacity	Anger
5. Self Assertion	Positive Self Feeling
6. Self Abasement	Subjection
7. Parental	Tender Emotion

Besides the above mentioned instincts, McDougall mentioned some more of them in which the related emotional feeling is not quite as obvious. They are as follows :

8.	Gregariousness	Loneliness
9.	Acquisitiveness	Feeling of Ownership
10.	Constructiveness	Feeling of Creativeness.
11.	Food Seeking	Appetite
12.	Sex	Lust
13.	Appeal	Distress
14.	Laughter	Amusement

According to McDougall these instincts are affected by the intelligence. The variety in their expression is due to the intelligence of the human individual. With the exception of laughter all the other instincts are found both in human beings and animals. Among them, the acquired tendencies such as self assertion, self abasement, parental and gregariousness are not universal. Sex, escape, curiosity and laughter etc., are practically universal and innate. Food seeking tendencies are found in all animals because all of them seek food. Similarly, the constructive tendency is found in men as well as in animals. To acquisitiveness, the quality of universality cannot be attributed though it is found in quite a number of living beings. Calling for help in times of danger and seeking help has its own biological importance and is a tendency possessed by all creatures. As a result of this, members of the group or the family come to the assistance of the victim. The tendency to avoid an undesired and detested object and to feel a repulsion for it is obvious in almost all creatures.

Criticism of McDougall's theory

Although McDougall's theory of instincts was welcomed very enthusiastically, it also gave rise to a lot of severe criticism. J. R. Kantor, a contemporary of McDougall, went to the extent of saying, "Nothing worse than McDougall's conception of instincts has ever been conceived in the field of psychology." But the theory of instincts cannot be refuted with such ease. To arrive at any conclusion it is necessary to study the experiments in this field from McDougall's time to the present day. Psychology being the science of behaviour, the theory of instincts can be accepted only if it helps in some way, to explain the behaviour of living beings meaning thereby that they help to show some specific innate, internal structure to be the cause of some behaviour.

Some difficulties are mentioned below which crop up when the theory is judged for acceptance.

Difficulties in the theory of Instincts

1. McDougall has himself accepted that experience does make very substantial alterations in the instincts. The environment and conditions cause a big change in the behaviour of animals and human being.

2. McDougall did, of course, formulate, a definition of instincts but he did not point out the stage of development on which the instinct may be seen in its purest and unaltered form in accordance with the definition. Neither he took the trouble of giving a detailed description of the conditions which may arouse an instinct and nor did he make any mention of the relation of emotions and their physiological and mental signs.

3. McDougall has given a general description of the stimulating conditions for instincts and the corresponding emotions but no such general description can be of help in the understanding of the working of instincts in living beings because the different types of creatures differ in respect of their physiological structure and nervous systems. A different description of each class of creatures will have to be made if this purpose is to be fulfilled.

4. McDougall said that every instinct has a definite neurological basis. He did not tell what the neurological basis was, which was the most important and perplexing problem. He failed to supply details of it while experiments on this basis were necessary for every class of creatures. They were to be comprehensive experiments.

5. McDougall did relate different emotions to instincts and he also accepted different nervous conditions for them but there were insufficient experimental details to support his hypothesis.

Examination of McDougull's theory

Sherman in 1927, Pratt in 1930, Irvin in 1932 and Taylor in 1934 all studied the reactions of children under controlled circumstances but they failed to prove anything thereby. Mostly people thought that there was only one central agency or energy which directed all the instincts. Freud's experiments in 1925 and Burtt's in 1939 upheld this view. When the diversity of emotions could not be proved, attention was directed towards the cognitive differences of the instincts. Every instinct has a specific internal organisation which compels its possessor to observe or to pay attention to a particular class of objects. The same difficulty arose in the recognition of these organisations because they became modified by experience or the effect of the circumstances so that it became difficult to distinguish between one and the other. Though McDougall did believe that due to the mental effects the instincts had the power of adaptation, he also gave credence to the idea that their internal patterns may vary. Some experiments revealed that some animals like the hen reacted to some specific stimuli in controlled conditions but they failed to pay attention to objects which they had been taught to pay attention to. This proved the idea that there may be an internal perceptual system. But then, Lashley's experiments proved that many changes are possible in objects which arouse certain specific excitement. These experiments were carried out in 1938. These made the distinction of instincts difficult. In 1942, in a symposium Burt came to the conclusion that "Along with lower animals human beings have some inherited tendencies, the more obvious of which are fighting, fear and sex, and perhaps there are others more difficult to ascertain." Even when the instincts were so limited in number, G. W. Allport, in a symposium in 1946 refused to accept this claim.

Present standing of the theory

Accordingly, though many psychologists believe the existence of instincts in human beings they give to them an importance far less than one accredited to acquired motives in human behaviour. In elucidating human behaviour more emphasis is laid on the explanation of his history or his family or social conditions than on relying on the theory of instincts. Some people seem to believe that McDougall's theory of instincts may be of greater help in understanding the behaviour in animals but it is not very helpful in the understanding of human behaviour.

Conclusion

Experiments carried out in recept times upon the subject of instincts make it clear that the theory of instincts cannot be dispensed with, with such consummate ease. In 1951, Tinbergen conducted many experiments in which the unacquired and innate reactions of birds and animals to special kinds of stimuli were noted. Experiments by other scientists indicated that there are some innate mechanisms in various animals which are directed by specific stimuli. But it is possible that further experiments may show different patterns of specific behaviour in different classes of living beings which may atleast lead to the establishment of some neurological basis. Experiments in connection with learning have thrown light upon this. Some experiments are providing proof for the specific behaviour patterns. To conclude, in its present state, nothing can be said with certainty about the theory of instincts. But one thing is definite, that enough evidence is not available to prove the theory of instinct baseless. The fact is that the evidence available is in favour of the theory.

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Q. 65. **What is meant by instinct ? Bring out its relation to Reflex Action.** *(Bombay 1958, 56, 55, 52)*

Discuss the nature of instinctive activity; bringing out its difference from reflex action. *(Bombay 1953)*

Ans. For the nature of instinctive activity please see the answer to the preceding question.

Instinct and Reflex

The differences between instincts and reflex actions are as follows :

1. An instinct is a complex chain of activity. For example the activity cycle of sexual instinct in pigeons is spread over months To start with, the male starts to follow the female about the advent of the spring. He gets her to mate with him, which she finally does. They both follow it up by constructing the nest in which the female lays her eggs. They then alternate in the sitting upon the hatching of eggs. When the youngster emerges from his shell they bring him food. This chain ends when the youngster flies away. On the other hand, the reflex action is done in the blinking of the eye.

2. In instinct the person reacts as a whole to the total situation. As is obvious from the example about pigeons, the male and the female take part in the sexual instinct to their utmost ability. A person is fully excited when he attacks. The reaction to stimulus in a reflex action is localised in a part of the body, e.g., withdrawing the hand on being pricked by pin.

3. The activities in instincts go on for a long time, as exemplified by the pigeons. On the other hand, reflex is momentary. The person who is in the grip of the instinct of aggressiveness searches for a suitable opportunity for years. On the other

hand, the hand immediately plucks to remove a thorn from the foot.

4. Instincts are not merely a chain of compound reflexes. There is a persistency in instinctive activity absent in the reflex actions. It is a steady activity.

5. The instinct originated activity is aware of temporary aims. The reflex activities take place unconsciously.

6. The activities which originate from instincts are modified as and when there is any need. A person in the grip of the sex instincts invents the most complicated and indirect way to satisfy it. These activities change with experience, but it is not so with reflex actions.

7. The instinctive activities include the mental elements, e.g., maturity, interest, attention, and learning by experience. The activities caused by the instinct are infinitely changed by these mental elements. They do not affect the reflex action.

The following table will classify the differences between instinct and reflex action :—

Difference between Instinct and Reflex Action

Instinct	Reflex
1. Complex	Simple
2. Of long duration	Momentary
3. Reaction of the whole body	Localised
4. Many stimuli	One stimulus
5. Knowledge of aims	Unconscious
6. Stability in changeable activity	Unchangeable
7. Mental element	Absence of Mental element

* * *

Q. *66.* **What is instinct ? Can it be modified ? Discuss.**
(*Bombay 1959*; *Nagpur 1955*)

What is the nature of instinct ? Does instinctive behaviour admit of learning ?
(*Agra 1956*)

Ans. Please see the two previous questions for the nature and definition of instinct.

Modification in Instinct

Stout has rightly described the sign of instinctive activity as "*Persistency with varied effort*". Instinct is a constant tendency towards a particular class of objects as illustrated by the interest of a developed male towards a female, because of the sex instinct. This instinct cannot be removed but its form or itsm ode of expreion may be modified. For example, in youth the attraction of males and females due to the sex instinct is quite natural but if some boy or girl has a disagreeable experience of the other sex which may arouse in him a fear of or hatred for that person the manifestation of the sex instinct is much changed, so much so that it becomes difficult to decide whether the sex instinct is active in his behaviour or not.

In a similar way, the object of the instinct may be altered. It is some times seen in human beings that the behaviour of boys towards boys and girls towards girls is the same as the behaviour which boys should have for girls and girls for boys. Instinct is a psycho physical disposition and as such, it is inseparable from the creature. But the difference in its objects and the modes of expression is observable. This modification is far more pronounced in men than in animals. Man lives in society which has certain rules about behaviour, the infringement of which is liable to incur the displeasure of the other members of the community and bring in its wake a variety of punishments. Therefore, the individual suppresses his instinctive desires and tries to express them in ways acceptable to the society at large. Sometimes a person overcome by sexual desires refrains from looking at a woman. A woman avoids men even when she is attracted to them. A child, even when hungry, politely refuses to eat food proffered by others. We deny our thirst even when our tongue is dry. We approach dange even when we are frightened. We do not change expression even when we feel a strong repulsion. A person does not attack even when he is so disposed but he waits for the correct and appropriate opportunity. McDougall has written, that with mental development, instinct originated behaviour declines. From the mental viewpoint man is the most developed creature. In human beings, the mental level varies with the individual. Though this results in very substantial differences in the object and the form of manifestation of instinct, there are some instincts equally present in all, in the form of psycho-physical dispositions, irrespective of the difference.

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Q. 67. Write a short note on—Ideo-Motor Action.

Ans. Ideo-motor action starts with a thought of action. Being extremely impulsive it changes immediately into action. Thus it is an impulsive action. The action takes place without any decision, but by mere thought. It is in this way, natural and undesired and it doesn't have particular objective in view. It includes imitation done unconsciously and unintentionally. In a crowd or mob most actions are Ideo-Motor because his power of decision is no longer independent. The actions in an abnormal condition are of a similar nature. A kleptomaniac steals immediatly the thought of stealing is aroused.

Writing on the subject of ideo-motor actions, William James wrote that, whenever there is an action without any confusion immediately after the thought of such action, it is an ideo-motor action. There is no knowledge of any object between the thought and its execution. We think of the action and it is done. Giving an example of such activity, James points out that while conversing I observe an allpin on the floor and become conscious of a speck of dust on my coat. Without interrupting the conversation, I pick up the allpin and I flick the speck of dust from my coat. I do not make any distinct decision and it seems as if the work is done by the perception of the object and a mere thought of the action to be done towards the object. Similarly, seated at the table after completing my meal, I find myself eating almond and other tid bits from the plate, from time to time. Properly speaking, my meal has been completed and in the heat of the argument I am barely conscious of what I am doing; but seeing the dry fruit and the thought that I have to eat, completes the action of eating.

Q. 68. What are the primary needs of man ? Do they provide the basis for all his social motives ? (*Agra 1960*)

Ans. For an exhaustive description of the primary needs of human beings, see question 62.

Specific Needs

The primary needs of human beings are those vital physiological or biological needs whose satisfaction is desirable not just for pleasure and contentment but for the survival of his very life. Needs belonging to this class are ;

1. Homeostasis.
2. Regulation of temperature.
3. Sleep.
4. Hunger.

These are specific primary needs found equally in human beings and animals, though the means adopted for their fulfilment are different. Besides the above given needs there are some other needs which are classified with these. They are the excretion of waste products from the body in the form of perspiration, urea etc., in physical exercise etc.

Less Specific Needs

There are some less specific needs over and above the ones mentioned so far which may also be considered primary, because even though they do not serve to preserve life, they are innate needs. These need are—Sex, Maternal behaviour, Escape, combat and mastery motive. Various psychologists have treated these as primary. Freud considers the sex motive and Adler the mastery motive to be primary. But many psychologists do not call these less specific needs primary. In reality, the sex, mastery, combat and escape motives can be classified as primary because they are unacquired needs. As for maternal behaviour, experiments indicate that it is acquired by human beings so that it is better not to consider it primary.

Are the primary needs the basis of all social motives ?

Some people believe that all the social motives of a human being are based on these primary needs, as Freud believed that the sex motive is the basis of all the human being's social motives. Similarly, as we have mentioned before too, Adler believed that the mastery motive was the greatest motivating force in the social motives. As a matter of fact, the person enters the world provided with the primary motives and he adds to his collection the social motives which he learns from the society. Thus, from one point of view it is quite unobjectionable to say that the primary motives are the basis of all social motives. But this point of view becomes fallacious if the interpretation placed on it tends to underestimate the value of the part played by the environment. The social motives are not, in reality a converted or modified form of the primary motives. In socialisation, a person develops such social motives as are in no way connected or related to his primary needs. For example, the primary needs in the people of the Zuni and Mundugumor tribes are the same but the tendency of aggresssiveness so prevalent in the Mundugumors is as a general rule, absent in the Zunis. Similarly, man, in general, enjoys meeting people and being sociable but there are some exceptional people who do not enjoy meeting others. In human society the complexity of roles, status and situations causes so many diversified social motives that it seems more scientific not to regard them as based on the primary needs. But even so, undoubtedly the majority of our social motives are founded upon our fundamental needs.

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Q. 69. **What is instinct? Is there any difference in the working of instincts in human life as compared with the life of animals?** (*Alld 1958*)

What is instinct? How is it related to Intelligence?
(*Bombay 1955*; *Gujrat 1957, 54*; *Karnatak 1965*)

Ans. Please see the answer to the question 64 for a definition of instincts.

Experiments have indisputably established that the working of instincts in the life of human beings and animals is different. There are two main reasons for this. The first one is that the intelligence and the various capacities of reasoning, imagination, memory, thinking, which go with it are found in human being but are very much less or nearly absent in animals. The second one is that the human social structure and its laws are both very different from the corresponding laws in the animal kingdom. For example, the two laws—struggle for survival and survival of the fittest—are not active in the human world in the way they are in the animal world, in which the strongest survive while the weak are not cared for and perish. In the human society, the weak, old, infirm, children, women are cared for even at the expense of the strong. Therefore, the instincts are not manifested in a similiar way in the two worlds. The instincts in human beings are socialized to the extent that some instincts, according to the social patterns, are completely suppressed and they are not seen. As an example we have the cases of the Mundugumors in whom the instinct of self submission is very rare, and Zunis in whom it is the instinct of aggression which is absent.

But, in human society itself, the cause of the differences in expression is the intelligence. McDougall, who gave to the theory of instincts the comprehensive form in which we now see it, accepted that the more the amount of intelligence the less will the behaviour be instinct-originated. It is due to this intelligence that man has erected the imposing structure of civilisation and cultural life so well defined. This brain helps man to conceal let alone satisfy, some instinct which may have made its presence felt in him. An animal shows fear when it feels it, but many human beings do not exhibit any sign of fear. In this way the working of instincts in animals and human beings differs tremendously due to socialisation and intelligence. For a detailed description see the answer to question 67.

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9

VOLUNTARY DECISION

Q. 70. **Distinguish between impulsive and volitional act and analyse the major stages in the process of volition.** (*Bombay 1953*)

Describe fully the process of Voluntary Decision. (*Bombay 1964, 1950*)

Explain fully the nature of Voluntary Decision. (*Gujrat 1953*)

Give a detailed analysis of Voluntary Decision. (*Gujrat 1953*)

Explain the difference between voluntary and involuntary action. What is the place of self control in there actions ? (*Gujrat 1964*)

Analyse the process of Voluntary Action, and bring out the part played in it by the self as agent. (*Punjab 1964*)

Ans. A voluntary act is an action with a will. It is different from impulsive action which is not voluntary. The major distinctions are as follows :—

Distinctions between Voluntary action and impulsive action

1. Voluntary action requires deliberation. Impulsive action is without deliberation.
2. Voluntary action is conscious, impulsive action may be conscious, subconscious or even unconscious.

3. In voluntary action the mental process is more complex as compared with the impulsive action. While impulsive action follows upon a single motive or desire, the voluntary action comes out of a conflict of several motives or desires.

The complex process of voluntary action has the following characteristics:—

Characteristics of Voluntary Action

1. It follows upon conflict of desires.
2. It is a purposive behaviour involving choice and foresight.
3. It is characterised by an act of deliberation.
4. It involves decision and determination.
5. Self plays an important part in it.
6. It leads to satisfaction when realised.
7. It involves complex bodily movements for its execution.

The subject of man's rational consciousness are his voluntary actions. The judgments of these voluntary actions depend on his character. He has to choose between various desires and analyse their results, only then, reaching some decision. A physiological analysis of voluntary decision reveals four psychological elements:—

1. Consciousness of various desires.
2. Conflict of opposing desires.
3. Analysis of the consequences of desires.
4. Judgment.

1. Consciousness of various desires—Rational deliberation starts with a consciousness of desire, the desire being a distinct tendency towards an object, not a mere appetite. That object fulfils some deficiency we experience in ourselves. We understand that the object will give us satisfaction. But the human mind has many tendencies and correspondingly numerous desires. We want not only food but also love. Along with the hunger for food, man's sexual lust is equally intense. In this way man is conscious of many desires simultaneously.

2. Conflict of opposing desires—If all the desires are similar or related to the same desire group or universe of desires, then there would be no internal conflict. But if these desires oppose the person's character or ideals, or are mutually contradictory, a conflict will start. Such a conflict between the various mutually contradicting desires in man's mind is a common place occurance. Each wants to defeat the other and satisfy itself. At one time one desire dominates while at another it is some other desire in the same position. These desires are not alone. It is a conflict of groups or universes of desires. It is a conflict between two ideals of life. For example take the episode of Rama sending Sita into exile. How did the ideal lover Rama manage to order Sita's exile and see it done, when he wandered around distraught and shed unrelenting tears at the time when Sita had been kindnapped by Ravana ? What a furious conflict must have taken place in his mind before he asked Lakshamana to leave Sita in the forest. On one side was love and on the other the question of king's duty. On one side Rama the lover and on the other Rama the king. It was duty which triumphed in this conflict and braving his heart he sent Sita into exile. A similar conflict, between desires of enjoyment and desires for study, takes place in a student's mind. It is a point worth noting that all students cannot sustain their determination to study in such a conflict. Many leave studies and engage themselves in sport. Only a character like Rama could have sent Sita to the woods on the random remark of a washerman.

3 *Analysis of results of desire*—In such a state of conflict man becomes stupefied. Before the start of the war of mahabharata when Arjuna felt an internal conflict, he laid down his weapons at S i Krishna's feet and refused to take up arms against his own kinsmen. One cannot do any thing till the conflict has passed. People with a weak will cannot control themselves and do mutually contradictory things. But strong willed people deliberate upon the results of those conflicting desires. The first important thing in deliberation is to make the subject of these desires very clear. It often happens that man does not know why he wants to do something. By nature man is an escapist and pleasure seeker. He wants to run away from duties. He wants to satisfy his instincts and to possess the bject he likes. Character is acquired with difficulty. In controlling the mind in order to acquire habits of good thoughts man has to make use of strong will power. Thus, when mutually contradictory desires arise, one should analyse both their reasons and results. Often it happens that some desire which one does not find harmful, in external appearance, becomes a bad habit upon constant repetition. Sometimes people feel that drinking and gambling once is harmless, but upon analysis it will become evident that both the reason behind it and the result are unethical. Similarly sometimes the motive behind what we believe to be love is base lust. Thus to know the motivating element behind every desire is of superlative importance.

4. *Judgement and action*—In this way, having analysed all the desires the individual will be able to see clearly their values.

Now the desire with the highest value should be chosen. In this way, after deliberation man reaches some decision. But the desire cannot be satisfied without being given a practical form. Sucessful deliberation removes conflict. But complete satisfaction comes only upon turning the will for fulfilment of desire into practical work.

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Q. 71. Give a psychological analysis of desire.

Ans. Deliberation starts with conflict of desires. If there is no conflict, deliberation is not needed. These desires are the motives behind most of our voluntary actions. When one experiences a want, one desires some object to fulfil it. At the base of it is a dissatisfaction with the existing situation, as well as a tendency to attain some more elevated situation. It is a complex mental state and has all the three elements cognitive, conative and affective.

Cognitive Aspect—In the cognitive aspect is the thought of that object which removes the want. This is the difference between appetite and desire. Along with this, in the desire is the thought of the means for possessing the object. In the conception of desire man compares the present and the future. Consequently, the greater the dissimilarity between the real and the ideal, the greater will be the intensity of the desire to possess the desired object.

Affective and Conative aspects—In the affective process there is a painful feeling of wanting the object in its absence and there is also a pleasant feeling by the hope of pleasure upon its attainment. In the conative aspect is the acute motivation to remove the want and a tendency towards action.

Distinction between desire, need and hunger—In this way desire is different from want because the latter is unconscious. It is also different from appetite because in it there is no thought of good or evil and no clear consciousness of the goal. In it (appetite), there is no congnition because it is merely motor. When the cognitive aspect invades appetite, it becomes desire. Thus desire is a contemplative mental disturbance. In it man is conscious of time, place, circumstances, right and wrong etc.

Desire, wish and will—Desires conflict and stronger desires triumph in this conflict. This effective desire is called wish. In the words of Mackenzie, "Briefly then, we may say that wish is a dominant single desire whereas the will depends on the dominance of a universe of desire."

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Q. 72. Write a short note on Volition.

(*Gujrat 1955*; *Karnatak 1952, 50*)

Ans. The function of the will is to control and direct the natural tendencies of men. The condition of a man in the absence of will can be inferred by seeing a drunkard. The drunkard has no control upon his mental or physical activities. Consequently, he sometimes uses profane language and sometimes lies in the gutter. His life is worse than that of an animal. He is the slave of his tendencies. In the absence of will, man loses his mind and dances as his lusts direct him. Mind can be controlled only through will. Character remains organised and strong by the power of will. It is said that a woman has no character, meaning that they have a lower will power or are found working under different master sentiments at different times, not that they are more corrupt. The secret of the great works is this will power which great men possess and it would be no fallacy to assert that it is wlll-power which makes a man great. The peculiar quality of man is his intellect. His ethical superiority lies in controlling the base motives and leaning towards good works with a will, according to this intelligence. The animals lack will power and that is why they change with the environment. Man has changed the environment by his will-power. This will-power is the foundation of his civilization, his basic power.

But will itself does not motivate any activity. It is a normative power. It gives form, not content, The content is the desire, inclinations etc. In the words of James Seth, "The function of will is not to create, but to direct and to control." The path of the animal is predetermined, his life is preconditioned, his hunger and instincts show him the way. Man's future is uncertain and he has to discover his own path, to understand his goal and to attempt to attain that goal. Herein lie his difficulties, but his superiority lies in it too. He finds the path of morality with this. And it is through this that he has evolved science, civilization, culture, etc. In volition three activities can be seen—first, all the tendencies are stopped, secondly the different ones are thought over and finally there is selection. In this way; attention oscillates in the activity of willing or volition and finally one path is chosen.

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Q. 73. **Character is the system of directed conative tendencies.** *(Bombay 1956)*

Ans According to Novalis, character is a completely fashioned will. A person's character is formed from his voluntary actions. It is a system of permanent conative tendencies. "In other words, character is not some thing spearate from will and acting upon it from without, but is the habitual mode in which will regulates that system of impulses and desires which, looked at subjectively, is the field of its exercise." For example, if some person is always engaged in bad work or is a regular drunkard it becomes a part of his character. Thus, to be invariably engaged in service to the country becomes the character of the patriot and to be engaged in the pursuit of knowledge becomes the character of the scholar. There is a difference between nature and character. Nature is innate and character is acquired. A man's character is built up by controlling his emotions and instincts on the basis of his reason. Thus it is a system of directed conative tendencies.

How is character formed ? In every adult there are some sentiments like those of patriotism, service of mother, or self respect etc. Character is the organisation of sentiments. In different people, different sentiments are primary and secondary. In this way, the sentiment of patriotism predominates in a patriot while the same position is occupied by the sentiment for money in a greedy person. The patriot has sentiments for mother, children, wife, etc., also but he is dominated by the patriotic sentiment and whenever there is a clash between interests of country and self, the interest of the country gets preference. In the organisation of character the secondary sentiments are dominated by the primary sentiments. If primary sentiments remain the same the character is termed organised. For example, if the patriot keeps the patriotic sentiment always above everything else his character is organized but if the patriot alternates between patriotism and caste service his character will not be called organised.

Character and Conduct—Character is expressed in conduct. The conduct will concur with the character. Base people are always steered in bad work and gentle people engaged in service and spiritual improvement. Volitions correspond to character. But volitions also make character. Thus it is obvious that the volitions of a person are not under the complete control of his character in the past. A good man can do bad work and a bad person may also do good. The dacoit of yesterday can become a saint to day and the saint too can convert himself into a dacoit. Upon seeing one bad act, a man cannot be said to have a bad character. In this way character and conduct are interdependent. A man will be called a bad character if he persists in his bad habits. Conduct or character do not include works done under external pressure. They are based on free will.

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Q. 74. **Write short note on—**

1. Concept of Self.

2. Conflict of Motives. *(Bombay 1960)*

Ans. Character and desire are intimately related to the self. Desire is conscious and it implies a tendency towards some object. Thus, it is connected with intellectual beings. Desire is the desire of the self. It is governed by the self. By it, man tends to possess some object. The self wants to get an object which may satisfy its desire and which may be related to its character. In the words of Muirhead, "Desires are always for objects, and these objects are always relative to a self for whom they have value. It is owing to their having a value for self that they become 'object of desire', whose character, even whose existence, may be said to be dependent upon the character of the self to whom they appeal." For example the desire for social service was intimately linked with Mahatma Gandhi's character and self. Social service was of tremendous value to his self because it concurred with his character, and that is why he did social service. In this way desire and self have a close relation. All desires are desires of some self. In the words of F. H. Bradley. "In desires what is desired must in all cases be self." At the base of this self satisfaction is character. Self satisfaction can come only if the object coincides with the nature of the self.
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Self, Character and Desire

Muirhead has deduced the following conclusion about the relation between self, character and desire.

1. Human desires are not mere thoughtless motives which aimlessly move man hither and thither, they are always for objects, thus, they are distinguished from animal hunger and lust.
2. These objects or aims have two types of relations with the self—
   (a) They are organically related to the character of the self.
   (b) They are related to the self because the latter seeks satisfaction through objects.

Universe of desires

Distinguishing between appetite and desire, Mackenzie has written "The desires of a person, therefore, are not an isolated phenomenon, but form an element in the totality or, as we may say, the universe of his character." Here Mackenzie's notion of the "Universe of Desires" assists in the understanding of the relation between self, character and desire. It is, thus, desirable to elaborate. An individual does not persist in the same universe of desires at all times. Often, the objects for which we have an acute desire sometimes are not just revolting at another time, we avidly try to avoid them. For example, it can be seen, a lover does not see any defects in the beloved or friend when in love, but the same lover finds it hard to discover any good qualities in her when he develops an apathy for her beloved, when he is bored of her or hates her. He wants to run away from her. Elaborating this fact, Freud says that love and hate go together. This type of mutually contradictory desires come from different universes of desires. This universe, at that particular time, is his character and his ethical view point. And man often passes from one universe to another.

Conflict in desires

But from this it should not be concluded that man lives in only one universe of desires at one time because had it been so, there would have been no conflict of desires. Thus, the position is that man has before him many diversities or that he travels through these universes of desires at such a speed that they may be regarded practically to exist simultaneously. In this way, often man's ego seems divided into many parts. Hegel has put the same thing in these words, "I am not one of the combatants, but rather both of the combatants and also the combat itself." Prof. Dewey writes. "It is important to notice that it is a strife or conflict which goes on in the man himself, it is a conflict of himself." Principal Caird puts it in this way, "I am at once the combatants and the conflict and the field that is torn with strife."

Deliberation takes place in this conflict. Judgement takes place in the same and its basis is the will. This will is expressed in conduct and conduct is the external form of character. In this way will expresses our "self".

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10

FEELING AND EMOTION

Q. 75. **Describe the nature of Emotion and consider how far it can be indentified with visceral sensation.** (*Poona 1960*)

What is Emotion ? Examine the importance of physiological factors in emotion. (*Bombay 1955, 54, 50; Gujrat 1958; Banaras 1965; Gorakhpur 1962; Alld. 1959; Poona 1957*)

Sketch the organic states with characteristic physiological change associated with the excited emotions of fear and anger. (*Madras 1962)*

"Emotion is a reaction of total organism." Discuss. (*Agra 1960*)

Ans. The word 'Emotion' is a derivative of the Latin word 'Emovere' which means 'to shudder'. Thus emotion is that state of the individual which deprives him of his equilibrium. In fear his teeth are clenched together, his body shudders and signs of perspiration can be seen upon his forehead. Emotions shake a man violently. Even when the object of his anger is no longer present, the person's arms twitch uncontrolably. Emotions stimulate the energies of the creature and assist him in dealing with emergencies. In an emotional condition he performs action which he is incapable of performing in a normal state. But sometimes, though comparatively infrequently, a person is absolutely stupefied and fails to perform even the ordinary activities. These mutually contradictory results bear testimony to the fact that it is difficult to define emotion. Though psychologists have not differentiated between motive and emotion, everyday experience shows that there is some difference. Similarly, some psychologists do not find any difference in physical activities and emotions. But experiments reveal this difference which is by no means negligible.

P. T. Young has defined emotion thus : "Emotion is acute disturbance of the individual as a whole, psychological in orgin, involving behaviour, conscious experience and visceral functioning." In Woodworth's opinion an emotion is a disturbed state of the body.

It is a disturbed glandular and musculal activity. Woodworth rightly says that "each emotion is a feeling, and each is at the same time a motor set." In this way emotion is that state of the individual in which the body is externally as well as internally upset. This can be clarified by an example of anger.

The emotion of anger is the painful aspect of the pugnacious instinct. Anger in the creature is aroused by any interference in the execution of an instinct generated activity, or by the failure of such activity. Therefore anger is directed upon the interfering object or creature, though not always because sometime anger is directed to oneself. For example, when angry, clenching of the eye brows, vociferating, kicking, attacking, trembling— these and other physical activities, or rather disturbances are apparent. The activities in an emotional condition of anger are the opposite of the activities of a person who is struck into fear. In anger a person becomes aggressive.

For the importance of physiological factors see the next question and answer.

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Q. 76. **Clearly distinguish between Emotion and Feelings.**
(*Bombay 1959, 1958*; *Gujrat 1960*)

What is the difference between Feeling and Emotion ? Explain the part played by physiological factors in emotion ?
(*Gujrat 1964*; *Bombay 1958, 1959*)

Give an account of bodily changes involved in emotion. Illustrate your answer with the help of concrete examples.
(*Bihar 1959*; *Alld. 1959, 1958; Agra 1958*)

Ans. Both emotion and feeling are closely related to one another. They both depend on the brain stem in the nervous system. Pleasure, pain, fear, anger, love and gaiety etc., are feelings as well as emotions. Consequently many of the emotions are included in feelings. Feelings can be pleasant and can be painful too. Similarly, emotions may be caused either by happiness or by sorrow.

In spite of such a close relation between feeling and emotion they are not identical and this difference should not be lost sight of. Feeling is the reaction of pleasure or pain originated by the sense organs, which results from sensation. For example, the observation of a rainbow in the sky results in a feeling of happiness. When a thorn pricks the foot, a feeling of pain is generated. Thus, feeling is sensory and simple, whereas on the other hand, emotions are more complex. They can be aroused not only by the existing circumstances but also by a recollection of these circumstances. Players are excited by the imagination of derision of the failure in the game. We are filled with hatred when we are reminded of disgusting circumstances. Another difference between emotion and feeling is that while feeling is aroused by sensory reactions emotion is activated by thoughts and imagination, not by sensations. It follows that there is a difference between emotion and feeling from the mental viewpoint. The difference between their mental qualities is the result of the contributory circumstances from which they originate. Emotion is evolved at a more complex level, and new elements are introduced in it. The pleasure which we receive by listening to a good discourse or by reading a good discourse or by reading a good book is not due to the words as such but due to the thoughts expresed by these words. The pleasure which arises out of listening to an oration by a famous leader is due not to the voice of the leader, but rather to his opinion. These are examples of emotion.

Emotion is more Comprehensive

Another substantial difference between emotion and feeling is that the former is more comprehensive than the latter. Feeling is a part of emotion. Emotion includes feeling and it is therefore something more than a feeling. This closeness of the relation of the two often causes people to forget the difference between them. In emotion some glands inside the body excrete some specific types of juices. But there is no excretion in the case of feeling. In feeling there is more neural excitement than in emotion. At a certain stage, even a tendency to become active is perceived.

Emotion is more vigorous than feeling and it upsets the whole body. The individual is divested of his stability and his control over the situation. Consequently, the necessary reaction is impeded in its execution and behaviour is disturbed. The derangement is present in feeling too, but not as much as in emotion. In reality,

Emotion is more vigorous then feeling

slightly disturbed state indicates feeling and a greater disturbance points to emotion. In an emotional state the behaviour of a person is more excited, vigorous and disturbed than in feeling. Feeling is never as full of excitement as emotion is. In the grip of emotion a man sometimes transcends every type of limit, reason being completely paralysed. Feeling never attains such a frenzied sate. Hatred is never as effective as anger is.

Effect of Emotion on the body

Emotion results in bodily changes which can be classified as external bodily changes and internal bodily changes.

External physical changes

Generally, emotion is identified with bodily changes. An emotion is guessed on the basis of external physical changes. If a person grinds his teeth we say that he is angry. When a person trembles it is remarked that he is nervous. In happiness our face lights up, in sorrow our eyes are filled with tears and in surprise our eyes dilate. In this way, a difference in the expression of the eyes, nose, mouth, forehead etc., is discernible in emotion. A person's voice is altered and he adopts a fresh posture. These are the external changes in the manifestation of emotion. These will now be described in detail.

1. *Facial Expression*—When under the influence of emotion, the facial expression of the person is the first to be altered. It is easiest to read the emotion of pleasure or pain from the face. No amount of effort can successfully disguise the facial contortions in strong emotion, from an experienced observer. In an emotional state the muscles of the face expand or contract. In pleasant emotion, it is said, that the face lights up with delight, this lighting up refers to the muscular expansion. Similarly, it is said that the face hangs down. The reference is to the contraction of the muscles. Prevalent sayings such as blushing with shame or averting the eyes, expansion of the eyes in fear, elevation of the eye brows in anger are used to describe the changes in facial expressions in emotion. Many psychologists have experimented in order to determine the meaning of a variety of facial expressions. Some experiments seem to indicate that the facial expressions by themselves are insufficient to enable a distinction to be made between the emotions, but the data collected from these experiments is insufficient. (1) It is

difficult to get the normal emotion in the artificially created situation in the laboratory. (2) In different cultures the mode of expression of the various emotions is not uniform. (3) Even if the normal emotion is produced in the laboratory it is necessary to photograph it at high speeds. (4) In the recognition of emotions, experience and instruction are indispensable. In reality, it cannot be said with any degree of certainty that it is not possible to recognise emotions from the facial expression. Even after the effects and impressions of the society, there is a degree of similarity in the facial expression of emotions of the members of every society. It is easy to recognise the conflicting expressions of pleasure and sorrow in Leonardo da Vinci's sketches given below.

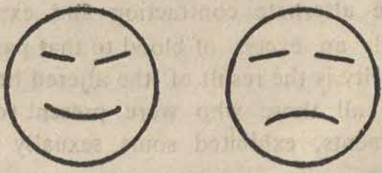


Fig. 12.

2. *Vocal Expression*—Emotions can be expressed through the medium of voice and through this medium similar emotion can also be aroused in others. In expression of emotions the voice is influenced i. e., the pitch and loudness of the voice changes. The voice of an angry person is hoarse and loud whereas a happy person's voice is rythmical and sweet. Some of the stronger emotions can be thus distinguished by hearing the voice. Sometimes even language can successfully excite emotions.

3. *Postural Expression*—In an emotional condition, the posture is affected too. These changes are not similar in all societies and in all the members of any society. When frightened a person is seen either running or standing still. In love, embracing, kissing, etc., may be observed but these show substantial changes in different societies due to the effect of culture. When angry some people use foul language, others pace about in a frenzy and still others attack somebody. Rubbing hands, clenching fists, standing erect, sitting with a bowed head, hiding, flinging the arms about etc., all indicate emotion but the identification of emotion depends upon the person

and the society to which he belongs and is possible only after adequate research.

Internal physical changes

Beside the external changes mentioned above, there are some internal physiological changes too, in an emotional state. When surprised our breathing almost stops. Our heart beats faster when we are angry. But these internal changes can be known only when they are measured by instruments. Some major changes are detailed below :

1. *Change in heart beat*—Generally, the heart beats faster or lower if the individual is disturbed. This fact is utilised by literary people, as they mention this fluctuation of the heart beat to show the presence of emotion. The face is flushed or blood shot in anger, because the alternate contraction and expansion of the blood vessels sends an excess of blood to that part of the body. This abnormal activity is the result of the altered heart beat. The blood pressure of all those who were present rose when Scott, during his experiments, exhibited some sexually exciting photographs.

2. *Blood Pressure Changes*—We saw above how the heart beat changes and affects the blood pressure ; this change, being very prominent, is very noticeable and is generally considered to be a good indicator of emotion. It is measured with a Plethysmograph. It can be used as a lie detector though its validity is restricted to the inexperienced deceiver because only such a person will be disturbed or upset at the prospect. Contradicting all that we have been asserting all along are some experimental results which prove that this change is not inevitable. Examining some soldiers injured in war it was noticed that their blood pressure was not noticeably altered, in spite of the emotional experience of the war, while the visiting relatives were more severly affected, as was proved by their blood pressure.

3. *Change in the Blood Chemistry*—This is not all, because in an emotional state some changes in the chemical condition of the blood also take place. Another reaction to the emotion is the excretion of adrenaline from the adrenal gland, which puts more sugar in the blood and gives the person a reserve of energy to rely on and face the situation. The effect of Adrenaline is felt in other quarters too. There is more sugar in the urine, blood pressure and

heart beat increase and some capillaries in the skin start contracting.

4. Change in the Rate of Respiration—It is a matter of common experience that when excited, one's breath comes in short, quick gasps. When a person is feeling sorry or depressed he breaths slowly. These changes are measured with a pneumograph. Commonly, emotion causes changes in the rate of respiration.

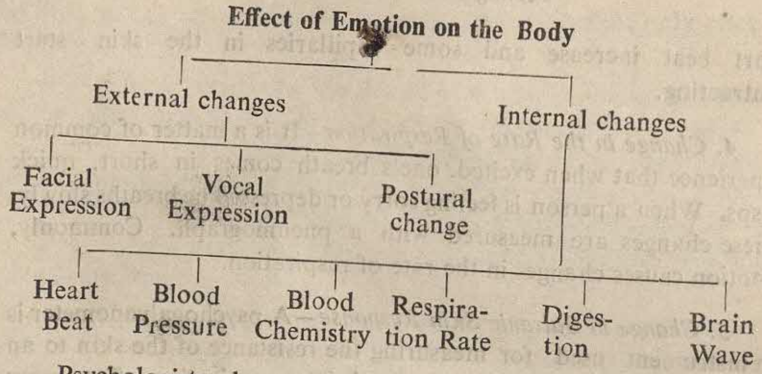
5. Change in Galvanic Skin Response—A psychogalvanometer is an instrument used for measuring the resistance of the skin to an electric current. A skin dampened by perspiration offers more resistance than usual. Previously, this state was supposed to be the peculiarity of emotion, but it has now been established that the same state will be the outcome of any physical or mental exercise. But still the response of the skin is present in emotion and is a definition of the emotional state.

6. Metabolic Changes—Another important factor in the internal changes is the effect upon the process of digestion. But it has not been finally proved whether the change differs in different emotions or not. Burnswick's experiments on human beings showed that in fear, sorrow etc., the processes of digestion are interrupted or stopped but in surprise the process was apparently accelerated and happiness left the digestion indifferent.

7. Changes in Brain Waves—The frequency of brain wave is affected in emotion. This change can be measured by instruments.

These are major internal and external changes but they do not include everyone. There are some other physiological changes which are apparent in emotion e. g. when a person is extremely frightened he may excrete urine etc. This is a tendency present in every animal and bird. This comprehensive study of internal and external physiological changes must have made it very clear that in emotion there are changes, though it is not possible to determine with accuracy the connection of a certain emotion with a certain change.

These changes due to emotion will be clarified further from the following chart :



Importance of Physical Changes in Emotion

Psychologists do not agree as to the importance of physiological changes in an emotional state. The behaviourists place much emphasis on the physiological changes due to emotion and do not give any credence what soever to the mental responses. On the other hand, some psychologists lay an equal emphasis upon the mental changes. Looking at it realistically the physiological changes cannot be assumed to be everything, but then neither can they be neglected and considered insignificant. Similarly, the mental aspect of emotion can neither be neglected nor relied upon exclusively. It is necessary to understand both the aspects to understand emotion completely. As experiments are still being conducted in both these aspects, it is necessary to keep in view the physiological changes as well as the functions of the different parts of the brain while making a comprehensive study of emotions. A fully satisfactory theory of emotions can be evolved in the future only with a balanced viewpoint.

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Q. 77. Write a short note on—Sympathy.

Meaning of sympathy

Ans. The literal meaning of sympathy is to experience a feeling similar to others. It is to experience with another. A person is said to be sympathetic to others if he feels distressed at their sorrow and experiences pleasure when they are happy. A general example of an expression of sympathy is the smile of a person in response to his neighbour's smile. We affect seriousness in a grave atmosphere and feel gay and lighthearted in an atmosphere saturated with gaity. Similar instances of sympathy can be observed in our daily life.

The nature of sympathy, so to speak, is not yet confirmed and we cannot say with certainty whether it is innate or learned, i.e., a reaction learned by imitation or from any other source. But it is certain that it is not just imitation. There is a specific motive in it besides imitation. Take for example the case of two lovers. They quite naturally share each other's feelings, but when married, they do so knowingly and of necessity to ensure a long life for their matrimonial harmony. Sympathy makes mutual love stronger and gives a feeling of serenity and intellectual peace.

The necessity of Imagination

To be sympathetic an element of imagination is indispensable in a person. Unless a person has the ability to imagine a similar contingency and place himself in it, he cannot sympathise with another. An emotional nature is necessary for an experience of sympathy. A person can sympathise with anybody in pain only if he had some previous experience of some kind of pain or if he can imagine himself in a similar position. A sympathetic nature is, of course, quite natural but one has to learn to behave sympathetically with others. Though an innate emotion it is always being developed with exprience. The scope of a child's sympathy also widens. Sympathy is the basis of social feelings. There is an attraction in it. Consequently, people always express sympathy for their friends, never for their enemies.

Sympathy is Innate

In McDougall's opinion, sympathy is an instinct and not an emotion. Treating of this subject in his book '*Social psychology*', McDougall expressed the opinion that the inception of sympathy-born feeling and emotion can be observed in a child at an age when he cannot the believed to be capable of knowing the significance of the expressions which are the origin of these reactions. Probably the first expression to which they respond is the voice of some other child's yell. Growing up slightly, the expression of happiness and the perception of a smile elicits a smile. And, at a later stage, fear, curiosity and anger are transferred from one child to another in this direct manner. Laughter is infamous throughout life for being contagious like a disease and it presents a familiar example of the ingress of a sympathy-originated emotional state. This immediate and unlimited power of reacting to other people's expression of emotions is one of the greatest attractions of childhood. It follows the opinion expressed by McDougall that sympathy for others is a normal reaction in a child.

Sympathy is conditioned Response

Some psychologists believe that sympathy is a conditioned response. W. E. Blatz came to the conclusion that the emotion exhibited by a person is aroused in the form of a conditioned response to some element present uniformly in the basis as well as in the present situation and is a part of his emotional habits as a result of his past experiences. In the same way, when a child cries on seeing another child, he is revealing the same response which he made in similar circumstances when he was all alone.

Sympathy is learned as well as innate

Upon reflection on the behaviour of children or one's own experiences in daily life, it is easy to realise that both the above mentioned schools of thought are partial. Every example of sympathy cannot be explained by calling it instinct-originated or conditioned response. Sympathy may be instinctive as well as a reaction to the circumstances. In reality the behaviour of a person in society which originates from sympathy cannot be explained either by calling it an instinct, or a conditioned response to the situation. Obviously, the child learns the expression of sympathy by an imitation of his parents or elders. Briefly, sympathy contains much that is innate and much that is learned. The proportion of these two in sympathy can be calculated only by further research.

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Q. 78. **Discuss the function of emotion in experience and behaviour. Give examples of some simple and complex emotional conditions.**

Importance of Emotion in life

Ans. Emotions occupy a very important position in a person's life as they motivate many of his endeavours. The man who gives his life for his country with a smile on his face, who fights in the battlefields, who performs acts of valour and bravery is urged on not by his thoughts and mind but rather by his emotions.

A life devoid of emotions is insipid and unattractive. Love, affection etc., are not the only emotions by which life is made more worthy of living. The same can be said of rivalry and anger etc. A person responds to the situation as a result of emotion. It is commonly experienced that emotion increases energy mobilisation in the body. It is borne out by the fact that when afraid we escape from danger in a way which surprises even us. An angry person performs courageous acts of which he is undeniably incapable of in a more tranquil condition of the maind. A person in love makes sacrifices for the object of his emotion which he would not make in an unemotional state. The love for their offspring spurs the parents on to great sacrifices.

The presence of emotion makes the individual lose control over his brain, the results of which may be beneficial or harmful. When in the grip of anger a man does things which are unfair. A sexually excited person is seen behaving like an animal. An extremely excited person resembles an insane man. He fails to distinguish between good or bad and does either with equal enthusiasm. Consequently, he either reaches eminent height or degenerates to the level of animals.

In practice and experience, it is evident that emotional instability is harmful to the body and mind as many mental and physical aliments result from it. But it is equally harmful to suppress them in an effort to control them. Psycho-analysts have made a detailed analysis of the disease arising from such suppression. As a matter of fact, in order to control emotions, it is necessary to see that the occasions which excite them are as few as possible. They can also be kept in check by auto-suggestions. The emotions become enfeebled through desires if an attempt is made to use them rarely. If the excitement connected with some emotion is conditioned by some other emotions, the painful emotion can be eliminated. Control of emotions can be facilitated if an innocent and harmless method can be devised to form an outlet for the animation.

Control over emotions

There are many internal and external physiological changes in emotion. Normally emotions ca not be recognised from their external signs, though with practice some of the emotions can be recognised. In practice we know that our emotions make an impression

Expression of Emotions

on others. Thus we try to conceal our baser emotions, as hate, fear, etc. Culture requires us to conceal our emotions but it is the emotions which reveal to us the profundity of the thoughts in others mind. Though people make an effort to conceal their emotions, at some juncture it becomes necessary to make as complete an exhibition as possible. It is not enough that the lover experiences love for his beloved, an exhibition of his love is necessary. Sometimes another person's behaviour necessitates an exhibition of anger. It is correct to put on an appropriate display.

The importance of emotion, in practice and experience, is paralleled by its difficulty of control. It is more desirable to transform emotions and divert them into productive channels than to suppress these emotions or to cast them off. Proper use can thus be made of emotions in life.

Simple and complex emotional states

We have to pass through emotional states which are in practice, either simple or complex. In the simple emotional state, generally there is only one emotion. In the complex state more than one emotion is involved. For example, hatred is a mixture of anger and indifference with a dab of fear; kindness includes love and sympathy. Simple emotions can be observed in children and the complex emotions in grown up persons. Simple emotions are natural. Complex emotions are being constantly developed in social conditions. For example, jealousy is propagated in the child by the arrival of a new child.

It is imperative to study a few examples of the simple and complex emotions in order to understand them better. Grief and joy exemplify the simple emotions while love and hate illustrate the complex emotions.

1. Grief : This emotion results from damage to an object of one's desire. Grief is felt when a loved person or object is hurt or if one's desires are frustrated. The lengthening of the face, contraction of the chest, tears, catching of the throat, crying, fainting, sobbing etc., are some of the signs of grief.

2. *Joy* : Joy is the opposite of grief. The expansion of the chest, lighting up of the face a smiling and laughing face, glittering eyes, jumping about, clapping, dancing etc. are all the external signs of joy. This is the result of the gratification of one's desires. Success after conflict brings joy.

Love and Hatred are described below as examples of complex emotions :

3. Love : It is a complex emotion, a mixture of pity, sympathy, affection, love and prominently sex. Some people believe it to be lust. McDougall believed it to be the emotion aroused by the sexual instinct. It is sometimes manifested as a permanent emotional tendency as in the case of a mother's love for her child. At this stage it is generally transformed into a sentiment, Selfishness and selflessness may be found in love in different degrees, as both are commonly present in it. In different states either selfishness or unselfishness may dominate the other. Pure selfish love and pure unselfish love are rather the exceptions than the rule. In love there is an inclination towards kissing, embracing etc., Being a complex emotion the external changes in love are extensive and they depend on the nature of the person, the intensity of love and the surrounding conditions. Taking on the lap, caressing or fondling, kissing, embracing, sighing, thrilling etc. are all signs of love.

4. Hate : McDougall calls hate, which is a complex emotion, a compound emotion. According to his way of thinking, hate includes anger, fear and disinclination. Some white people hate the black people. They feel angry with everything they do. They want to stay away from the blacks and they feel afraid of them.

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Q 79. **Discuss the Jame Lange theory of emotions.**

Discuss the physiological theory of emotion.

(*Baroda 1963*; *Bombay 1959, 50*; *Karnatak 1953, 52*; *Gujrat 1964, 1955*; *Mujaffarpur 1964*)

Examine James view that "Emotion is a consequence and not a cause of bodily expressions." (*Gujrat 1959*)

State James-Lange theory of emotion. Examine the evidence produced in its favour and give your judgement upon the theory.

(*Rajasthan 1964*; *Vikram 1963*; *Ravishanker 1965*; *Agra 1964, 1962, 1959, 1958, 1956*; *Alld. 1956*; *Bombay 1958*)

Ans. In 1884, the famous American psychologist William James, published his theory of emotions. In 1885, a Danish psychologist Lange, independently presented his theory of emotions.

Due to many points of similarity between the two theories, this theory became famous as the James-Lange theory.

James-Lange theory

The James-Lange theory is the very antithesis of the popular belief about emotions. The theory states that many physiological changes take place upon perceiving the circumstances and a knowledge of these changes makes an emotion felt.

Thus according to this theory, emotion is a pattern of organic changes. The external stimulus excites one or more sensory organs. The excitement is sensed and conveyed by the sensory nerve impulses to the cerebral cortex whence there is a knowledge of the specific stimulation. Next, the nervous impulse goes to the muscles and the viscera which are excited. The excitement is then conveyed to the brain via the sensory nerve impulses. And from this results a feeling of emotion. James in his book *Psychology* has presented his theory saying that his theory is that physical changes immediately succeed the perception of the stimulating elements, and emotion is the experience or feeling of these changes as they take place. General opinion says that when we lose our wealth, we are grieved and we cry, when we see a bear, we are frightened and we run, when we are humiliated, by our rival, we feel angry and we attack. It is more logical to say that we feel aggrieved because we cry, we feel angry because we attack we are frightened because we tremble. Similarly, Lange has also maintained that physical actions cause emotion. He writes that the vaso motor system is responsible for our pleasures and discomforts, joys and sorrows in fact, the entire emotional side of our mental life.

The following are the more important arguments in favour of the theory :

Arguments for James Lange theory

1. Perception causes bodily changes without arousing the emotion—According to James, if we see a mobile black visage in the jungle our heart stops beating and we start trembling before any clear idea of danger is conceived. Apparently, in this case the perception and bodily changes precede the emotion.

2. An emotion cannot be imagined in the absence of physical expression—According to James if we imagine an emotion and then try to remove the signs of its physical experiences from our consicousness we do not find any such thing which may constitute an emotion. Whatever is left is only an immutable state of feelingless intellectual perception.

To experience an emotion it is necessary to adopt a suitable bodily posture. Without it, the emotion cannot be felt.

3. *The suppression of physical expression results in the suppression of related emotion*—If the emotion is not permitted to express itself, it is destroyed. One tries to amuse a person who is crying on account of sorrow because it is generally believed that if he ceases weeping, his sorrow will be reduced or that he will be happy if he laughs. In practice it is seen, that this is exactly what happens generally.

4. *The artificial creation of physical expression creates the related emotion*—Presenting the examples of actors, James said that, while acting, they experienced the emotions the physical expressions of which they were enacting. When alcohol and other stimulating drugs are consumed, the manifestation of the various physical conditions results in the experiencing of various emotions.

5. *Some bodily abnormalities cause emotions*—Giving an example of this, James says that the troubles of the liver cause a loss of appetite and touchyness while mental diseases cause fear and despair. In James' opinion, objectless emotions are the result of bodily infirmity.

In this way, theory does not distinguish between emotion and physical sensation. Ward says that in this theory emotions are a group of physical sensations and these sensations are emotions. They are not only complementary but inseparable too.

This theory has been bitterly criticised. The following are the main points of criticism.

Criticism of the James-Lange theory

1. *Emotional reactions are possible even in the absence of the physical correlates*—Sherrington operated upon many dogs and severed the connections of the extremities and the brain by operating upon the spinal cord. But this did not affect their emotions in any way. Cannon and his assistants proved a similar thing in the case of cats. Dr. Dana proved it too, by observing the case of a fourty-year old lady who exhibited and felt emotions even though she could not receive any sensations from the sympathetic nervous system.

2. *Contradictory results have been obtained from actors*—Archer found that many actors do not feel any emotion when they are acting.

3. *Visceral and internal changes and infirmities do not make emotion inevitable*—Cannon and his followers administered injections of the excretion of the Adrenal gland to common people and caused many internal and visceral changes. But nobody felt any emotion due to these changes. Vernon, Cantril and Hunt, also achieved similar results from their experiments

Even alcoholic drinks failed to arouse any emotion.

4. *The absence of the sex organs did not undermine a person's sexual emotions*—Maccurdy wrote that a person unaware of his sex organs, still expressed a sexual interest in the hospital nurses

5. *The emotions cannot be differentiated on the basis of physiological changes*—If emotion is the result of physiological changes then the creation of one emotion by various changes or the presence of the same changes in different emotions cannot be explained, though this is noticed in daily life.

6. *Objectless emotions are not, in reality, objectless*—Titchener pointed out that objectless emotions are unmotivated remnants of motivated emotions which result from old emotional tendencies.

7. In different people, one emotion produces varied physical changes while the same changes may be observed as a result of different emotions. Therefore, emotion and physical changes cannot be believed to be inseparable.

8. *James has not distinguished between emotion—producing and unproductive physical changes*—Stout says that undoubtedly, every bodily change is not emotion. Hunger and stomach ache are not emotional experiences.

9. *If emotions result from a mere percepting of the objects, then why is it that similar stimulants do not arouse similar reactions ?* Ward says, "Let us suppose that at first James faced with a caged bear and then with a free bear. In the first case he feeds it groudnuts while in the latter he runs away from it." Obviously, emotions are aroused not by objects but by circumstances. Woodworth opined that emotions are aroused when some instinct excited by the circumstances is not satisfied. Drever is also of the same opinion. McDougall, has also stressed the instinct-originated element in emotion.

The arguments against this theory of emotions prove its unscientific nature. Later on James made some amendments in his theory and accepted that the perceptible object is influenced by the background. He went so far as to accept the presence of a feeling core between perception and the physiological changes. As a result of this change, emotion was no longer considered to be the result of perception nor was physical expression predominant in emotion. Consequently the amended James-Lange theory confirmed the popular opinion. As a matter of fact, the importance of this theory in psychology lies in its emphasis upon physiological changes in emotion. Its elaboration upon the subject of emotions is, however, unsatisfactory.

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Q. 80. **How would you distinguish between Feelings and Emotions ? Give the different theories of emotion.**

(*Banaras 1957*; *Karnatak 1964*)

Ans. In this context please refer to the answer to question 82.

Cannon's theory

Cannon's theory regarding emotions is also known as the Emergency Theory or the Hypothalamic theory. According to this view, the major part in emotional reactions is played by the excretion of the Hypothalamus. In this view, the cerebral cortex is the centre of emotional feeling while the internal brain or Dien Cephalon, which is formed of hypothalamus, and thalamus, is the centre of emotional expression. The nervous impulses reach the thalamus through the sensory nerves. The thalamus attaches to this an emotional quality and passes it on to the cerebral cortex so that the person experiences a specific emotion. While sending it on to the cerebral cortex, thalamus deflects a part of the nervous impulse to the viscera and the skeletal muscles. This results in a change in them which can be observed.

Criticism of Cannon's theory

It is undoubtedly true that Cannon's theory is more appropriate than the James-Lange theory. It has been proved that the hypothalamus does have a hand in the control of emotions. The acceptance of this theory makes it possible to understand how the emotions remain uneffected by the severance of the spinal cord or by the mild reactions of the viscera. It also explains the failure of adrenaline injections to arouse emotion. But this
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point of view is limited and one sided. As Lashley has shown by his experiments, every aspect of emotion cannot be explained by this theory. In reality, the other parts of nervous system have as much a hand in emotions as the hypothalamus. For example, the cerebral cortex has a greater part in the adjustibility of emotions.

Motivational Theory

In presenting the motivational theory, Leeper made emotion completely motivational and proved this fact through experiments. According to this theory, every emotion has a goal which pilots and guides the emotional action. Leeper has proved that every bodily change assists in the adjustment of the individual. Rate of respiration, heart beat, blood pressure, perspiring and visceral functioning all help the individual to adjust himself to the contingency. The excretion of the sympathetic nervous system spurs him on to greater effort. Other sympathetic reactions keep the body safe.

Criticism of the Motivational theory

Every day experience makes it quite obvious that emotional actions have a goal and that they help in adjustment. For example, we run away from a snake because we are frightened and we wish to save ourselves. Thus the motivational theory is true to some extent but only in the simple condition of emotion. If a person is extremely frightened he stays rooted to the ground and gets bitten by the snake. Similarly in a state of extreme agitation, like extremely sexually excited situation, the person's adjustment to the situation becomes worse instead of getting better. In reality, the motivational theory is correct in common emotional states, but it seems to lose its value with the increase in intensity due to the fact that in such conditions the actions in emotion are not directed towards adaptation. A psychologist E. Mira disproved this theory by pointing out six stages of development in fear. Mira's study indicates that in different stages the inhibition in emotion increases and the activities of the higher nerve centres are restricted.

4. *Activation Theory*—The most modern theory advanced on this subject is the Activation theory. It has accepted all the improtant aspects of the above mentioned theories. In keeping with the James Lange theory, it accepts the importance of physical changes and expression. It agrees with Cannon's theory on the importance

of the hypothalamus. It accepts the part played by the sympathetic nervous system and the assistance of emotion in adjustment which is in keeping with the motivational theory.

The Activational theory has emphasised the activities of the cortex because this theory originates from a study of brain waves. It is based on research in the physiological field. This theory propounds that in emotion the whole body and not any a part of it takes part. Consequently it cannot be said that emotion is based on some specific part. The arrangement of emotional activities can be affected only by the adjustment of the activites of the various parts of the brain. Thus, an understanding of the internal activities of the brain is necessary for an understanding of emotion. Though, the activation theory of emotions is superior to all the preceding ones, it is not the final theory. Some more experimentation is necessary to say anything definite about this subject.

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Q. 81. **Write a short note on Sentiment and attitudes.** (*Gujrat 1958*)

Ans. Please see the following question for Sentiments.

Attitudes

MacIver, defining attitude wrote, "it signifies subjective reactive states of consciousness with in the individual human being, with relation to objects." In this way positive and negative internal conditions are attitudes. Interest and attitude are interdependent. In society, a person forms attitudes towards objects, persons and institutions during his development and side by side the field of his interests is widened. His field, therefore becomes wide enough to include, successively, family, school and various members of society besides himself. In brief, wherever there are human relations, there will be interests and attitudes.

Kinds of Attitudes

Attitudes play an important part in the life of the individual and of the group. They give the individual various motives. For example we have relations of love, sympathy, friendship, liking etc., with some members of the society, while towards others we are not so well disposed. For them we may harbour feelings of scorn, enmity, indifference etc. Both these relations are activated, respectively, by positive and negative attitudes. Attitudes are complex, minute, active and changing and they are consequently very difficult to classify. MacIver has divided them into the following three categories—

1. Attitudes implying some present sense of inferiority in the subject with respect to the object of the attitude. These are of three types *viz.*, dissociative like fear, jealously etc., restrictive like devotion and the associative like thankfulness etc.

2. Attitudes implying some present sense of superiority in the subject. This class too includes three similar to the previous class—dissociative like sarcasm, disparagement, etc., restrictive like pride, toleration etc., associative like kindness.

3. Attitudes not necessarily implying a difference of plane or status. The same three kinds are prevalent here too—dissociative like disbelief, suspicion etc., restrictive like combative and associative like sympathy, love etc.

Interests and Attitudes

The most important classification of interests is into two classes—like or similar interests and common interests. The like or similar interests are those which are found individually as opposed to the common interests which are participated in by all In colleges for example the competitions are won individually by the students and they can, therefore, be said to possess like interests for the competitors, but when the college team wins a trophy, it is of common interest to all the students or at least, to the members of the team. It is here worth reminding that attitudes cannot be similarly common. Attitudes may be a like but interests are common, too. The life of the society has much importance for these common interests because the social organisation is maintained by their strength. The brief account of interests and attitudes given above does give an indication of their importance in social life. The social organisation depends on these. A knowledge of these is necessary for the strengthening of the society and prevention of disorganisation or for an understanding and improvement of human relations.

* * *

Q. 82. **Trace the process of development of sentiment, illustrating your answer by examples.**

Write a short note on—sentiment.

(*Bombay 1958: Agra 1960, 1957*)

What is the nature of Emotion ? How are emotions related to sentiments.

(*Gujrat 1954; Bombay 1950; Karnatak 1951; Vikram 1963*)

How are sentiments formed ? What is their utility for man. In what way are they different from Instincts and emotions ?

(*Punjab 1962*)

Emotion and Sentiment

Ans. An emotion is an acute disturbance of the individual. It is a mental activity in which there is feeling and motor set. It is an expectence and action directed by the person's internal structure. It comes and it goes making the person feel disturbed. On the other hand a sentiment is a permanent emotion. It is a mental structure, which is always present, even when the opportunity of expression is not there. This difference lies in the elements of mental structure and mental activity, in the structure of mental disposition and the experiences and activity regulated by it. In McDougall's words, "Emotion is a mode of experience, a way of functioning and a way of activity. The sentiment is a fact of structure, an organised system of disposition which endures, in a more or less quiescent condition, between the occasions when it is brought into activity."

Sentiment decides the form of emotions. In this way, sentiment is the cause of emotions and emotions follow sentiment. On the other hand, emotion, too is the cause of sentiment and sentiments follows emotion. The sentiment will be the same as the emotions felt for that person or object for a long time.

Development of Sentiment

In a human being there are some innate emotions called simple emotions, *e. g.*, fear, surprise, anger, grief, jealousy etc. Besides, there are some emotions which are constantly developing, *e.g.*, jealously, love, hatred etc. As the person develops in social conditions, these emotions are directed towards different objects. For example, he is afraid of one person and delignted with another. When several emotions connected with the same person or thing organise to form a permanent mental disposition a sentiment towards the object or person is formed. For example, a child loves his mother and is happy when he is in contact with her. His emotions of hunger, recreation, sexuality are satisfied through the mother. In this way, the child develops a sentiment towards his mother.

Please see question 75 and 76.

◆

Q. 83. **Show how emotions and sentiment follow and determine each other. How does a complex differ from a sentiment? Illustrate your answer.** (*Punjab 1960, 1959*)

Ans. Please see the last question for the way in which emotion and sentiment determine each other.

Sentiment and Complex

Many writers use the words sentiment and complex synonymously. Both have been taken for acquired emotional patterns or tendencies which constantly develop in the human being. If studied critically it will be observed that there is a major difference inspite of this similarity. A complex is an abnormal sentiments while the sentiment is a normal structure. In Dr. McDougall's words, "The best usage restricts the word complex to acquired conative settings, which are in some degree marked by reason of their lack of harmony with the rest of character." For example, some peoples develop an inferiority complex which results in the loss of firmness and determination from their character. Their characters are dis integrated due to this complex, on the other hand, sentiment are a part of character. It forms an organisation with other sentiments and helps in character formation. In this way, the sentiments are generally acquired conative trends and complexes are those sentiments which are indicators of a pathological state.

◆

Q. 84. **Explain McDougall's views on sentiments. How are sentiments organised into character?** (*Poona 1960*)

Explain the nature of sentiments and bring out their significance in the formation of character.

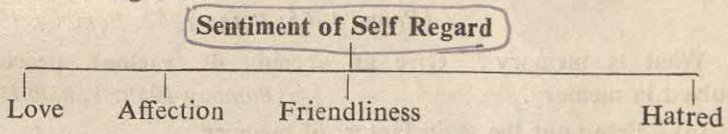
(*Bombay 1953; Karnatak 1953, 50*)

What part do master sentiment play in the organisation of character? (*Baroda 1959*)

Ans. For McDougall's view please see the last two questions.

Sentiment and Character

Character is an organisation of sentiments. In this organisation, a master sentiment rules the other sentiments. As long as the sentiments are unorganised the person has no character. Accordingly, from the psychological viewpoint, a characterless person will be one who is directed sometimes by one sentiment and sometimes by another and in whom one master sentiment does not guide the other sentiments. This is why it is said that women have no character. Consequently all the sentiments are organised under one sentiment in character. If, for example, the sentiment of self regard is prominent the organisation of the character may be shown in the following chart :



The seniments of love, affection, friendship and hatred are governed by the sentiment of self regard.

From the ethical view point if the master sentiment is noble the character will be high and if the master sentiment is ignoble the character will be low. It is one thing for the character to be integrated and a very different thing for it to be high. One is a psychological concept, the other an ethical one.

* * *

11

MEMORY AND ASSOCIATION

Q. 85. **What is memory ? Analyse the factors in memory and briefly indicate their nature.**

(*Poona 1965; Patna 1962*; *Bombay 1952*)

What is memory ? Give an account of various processes involved in memory. (*Bombay 1959*; *Punjab 1969*)

(a) Bring out the main factor of memory.

(b) Can memory be improved ? Discuss. (*Karnatak 1965*)

Describe in detail the different aspects of memorisation.

(*Agra 1961*)

(a) Describe the processes of retention and recall with illustrations.

(b) How do you measure retention ? (*Karnatak 1964*)

What is memory ?

Ans. The conscious level of the human mind is not the solitary level of mental activity. The impressions of various experiences become permanent at the subconscious stage and they come to the conscious level whenever they are needed or when there is that relevant context. The experiences are not obliterated from the mind with the passage of time, but rather, they remain in the mind permanently, in the form of memory and can be recalled with effort and recognised. But, it is common experience that people do not remember their experiences completely, and a major part is not remembered and it is forgotten. Thus remembering and forgetting are subjects of daily experience. Memory is a general word which includes several mental activities like recall, recognition or retention. We see indications of memory all around us. A person or animal experiences ease in relearning an activity which he had learnt previously but had forgotten. This proves very obviously that the previous learning had not been wiped out completely but had left an impression on the mind or a change in the nerves which facilitated relearning. People do not completely forget the story of any movie they have seen but recount it with ease when they are requested to do so by a friend. If someone else takes on the tedious task of telling the story of the same film, they affirm it because they are reminded of it, and if they hear any song from the film played any where they are easily reminded of that too. Thus there is retention, recall and recognition in the memory of a perceived experience, which makes it a complex activity.

Memory is a Physical Activity

Bentley and his followers said that experience or learning acquired by a person leave impressions or marks on the mind, which are memory traces. They are the basis of memory in the form of functional tendency, because retention ends when these traces are wiped off. These psychologists have established by giving proofs that retention is a physiological process.

Memory is a Psycho-Physiological Activity

But Bartlett, Piron and Gibson and some other psychologists have attempted to show that memory is a mental activity independent of memory traces. They have proved by examples of stories, pictures, etc., that memory depends more on mental states like interests, motivation, bias etc., than on repetition of experiences. This makes memory a mental activity. But just as every mental activity has a physiological base, so does memory has a physiological foundation. Briefly, memory is a psycho-physiological activity.

Memory is preceded by learning and therefore, memory has four reactions in general. They are as follows—

1. Learning.
2. Retention.
3. Recall.
4. Recognition.

Two of these four activities namely learning and retention, are essential in memory. Recall succeeds learning but there is no recognition. Sometimes retention is followed by recognition without any recall. Besides learning and retention both recall and recognition are necessary for complete memory. Sometimes it is recall which takes place first to be followed by recognition but equally often the order of the two activities is reversed.

1. Learning

It will be quite in keeping with the context to give a brief description of each of these activities. As has been mentioned above, the first step or activity is learning. If the learning is good, memory will also be good. Thus the methods which assist learning do the same for memory. Learning creates memory traces on the mind, on the basis of which recollection is effected.

2. Retention

The second activity in memory is retention, which means making permanent the remains of experience. The remains of experiences are left on the mind in the form of memory traces where they are safe though they are acted upon by interest and other mental states. The proofs of retention are recollection, recognition and relearning. Though recollection is a proof of memory, its absence is not the proof of the absence of memory because person often remembers something at a later date which had eluded him at the earlier occasion. Some is the case with recognition because while its persence indicates memory its absence is no proof that there is no memory. If we come face to face with a long-separated friend and find ourselves unable to identify him, we cannot take this to mean that all the experiences related to that person have been obliterated from the memory because the next moment we might be astonished when, at last, we succeed in identifying him. The most convincing proof of retention is furnished by relearning, in the absence of which retention cannot be accepted. If there is no progress in relearning it will be concluded that there was no retention. After experiencing any thing the activity of its consolidation goes on for sometime. This is proved by the fact that a poem will linger in one's brain for sometime after one has learnt it, even though there is no effort to recall it. Students preparing for some examination would have experienced this activity.

Levels of Retention

Retention, as has been mentioned above, is the making permanent of the remains of experiences. The different forms taken by these remains of experiences indicate that there are different levels of retention. Something remains on the fringe of consciousness and can be recalled into consciousness effortlessly. About some things we feel as if these had been experienced yesterday and can be recalled at will. The same cannot be said of others which we forget and can remember only when some one reminds us of them or when some new event takes place. In this way, efforts have to be made in order to remember things in the conscious, subconscious and unconscious levels. The facts in the unconscious can not be remembered and can be recovered only by word association, dream analysis and other methods.

3. Recall

The third activity in memory is that of recall. It is the activity by which the remains of experiences made permanent, are brought back to the conscious level. A student studies for his examinations all the year round and a major part of his learning present in a permanent and healthy state in his mind while answering the question paper in the examination hall he recalls this learning existing in the memory and puts it down in black and white. Though this recollection cannot be identical to the original learning, its matter resembles the original and a major part of the learning can be remembered in the same form if suitable efforts are made. Actually recall is something novel and not just a mere reproduction of the past experience or perception. In spite of the fact that it depends on retention, recollection is not fashioned entirely by it. It is not necessary that if retention is good recollection will also be good.

Nature of Recall

Ebbinghaus experimented to see whether recollection is creative or reproductive, i.e., whether the person concerned puts something alien with the recollection or does he make a faithful reproduction. Ebbinghaus taught some senseless stanzas to some people and asked them to recall these stanzas after different time intervals. From the results he concluded that recollection is reproductive, a view with which Bartlett and his followers do not agree, and to prove their point they experimented with the recollection of a story. A student was made to read a story with care and was given to recall it fifteen minutes later. This reproduced story given to another student to read and he, too, was asked to recall it. In this way, students were made to recall a story by this chain method and it was concluded that in the last reproduction, the conclusion and even names of the characters had been changed.

4. Recognition

The last step in memory is recognition. Sometimes recall comes after recognition as, for example, when we recognise an old friend the moment we set eyes on him and then we are reminded of many things about him. On other occasions, meanwhile, it is recall which precedes recognition. Suppose that I am travelling in a train and I am confronted with the embarassing situation of someone asking me whether I had recognised him. I apologise doubtfully and confess my inability to recognise him. The person says, "When ten years ago we lived in Saket, Meerut, we were neighbours." And this statement starts a reaction, reminding me of my experiences of ten years ago. We then recognise the person, shake hands and start talking of this and that. This example shows that recognition sometimes follows recollection.

Recognition may either be definite or indefinite. A person recognises a friend immediately he sees him and is perfectly aware of everything about this person, this being an example of definite recognition. An example of indefinite recognition would be the inability of a person to remember the time, place and context in which he first heard the story which has just been related to him inspite of the fact that he recognises the story itself. The person knows that when, where, how and by whom, in fact everything, of the recognised subject.

In recognition, the recognised person or subject is separated from other object or people. When a person recognises a friend in a crowd, he distinguishes his friend from the rest. This differentiation has a lot of significance in recognition and the more acute it is, to the better will be the recognition. And, recognition is impossible in the absence of differentiation. Recognition literally means cognising again, and it is therefore the cognition of some subject seen before. Thus recognition comes after cognition.

*****

Q. 86. **Distinguish between Recall and Retention. What are the conditions of Recall ?** *(Bihar 1959)*

Ans. Please see the preceding and succeeding questions and their answers.

Q. 87. Describe the conditions favourable to memorisation. What does good memory consist in ? Name and Illustrate some factors that help retention. (*Baroda 1964*)

Favourable conditions in Memory

Ans. To study the fovourable conditions in memory, it is necessary to study the favourable conditions for learning, retention, recall and recognition. Consult chapter No. 9 for th favourable conditions in learning.

Favourable conditions in Retention

Many experiments have been carried out on this subject and many physiological and psychological conditions have proved useful in learning. Some of the main conditions which favour retention are—

1. *Nature of Material* : The following specialities in the material to be retained help in its retention to a large extent.

(*i*) *Intensity* : The intensity of the stimulus assists in the retention of a subject. Weak or indistinct sensations do not stick in the mind for any length of time. Clear photographs can be remembered with ease.

(*ii*) *Distinctness* : Distinct sensations like strong light, extreme beauty or ugliness and such like can be retained for a long time. We forget an ordinary person easily but we remember one for a long time if he be out of the ordinary in any way.

(*iii*) *Recency* : Recent experiences are retained for a longer time and a diminution in their retention occurs with the passage of time.

(*iv*) *Meaning* : Meaningless sensations do not linger long in the mind while meaningful ones can be retained for long with little effort.

2. *Duration* : A sensation, while continues for a longer time, can be retained for a longer time in the mind. A sensation of a shorter duration will be, correspondingly, retained for a shorter duration.

3. *Amount of Material* : If the subject being persued is long it will be retained for a longer time while a shorter subject will take less time before it is forgotten. The amount of material to be learnt has a suitable effect on its retention. there being two reasons for the phenomenon (a) A man has to make less exertion in order to learn a shorter subject, while a longer subject demand more effort and therefore, the retention is more lasting

(b) In the longer subject, as compared to the shorter, the person finds the meaning and relates the various parts of the subject together, all this is the power of retention.

4. *Amount of Learning* : The extent of retention is directly proportional to the amount of learning, that is to say that retention will be more if the amount of learning is large. A subject studied more stays longer in the mind while one studied less will remain in the mind for a shorter period. Overlearning has a favourable effect on the retention.

But this does not mean that retention will go on increasing with the learning because after a certain limit disinterest, fatigue, and monotony may have a derogatory effect on retention. Therefore, the increasing and strengthening effects of overlearning confine themselves to a certain limit.

5. *Methods of Learning* : The methods of learning, too, do not fail to impress their importance on the retention of a subject. Learning by the whole method instead of the part method, the spaced method instead of the unspaced method and the active method instead of the passive method result in better and longer retention.

6. *Speed of Learning* : The faster the learning, the better the retention. This is the principle in accordance with which people learning faster seem to retain the subject learnt for longer periods as compared to the slower learners. For example, a child grasped mathematics later than his contemporaries, but when it came to language, making no pretensions he was far quicker at it. His retention of language was far more then that of mathematics. Actually, the speed of learning indicates the inclination of the boy towards a subject and interest he takes in it, and due to these he learns it faster and retains it longer.

7. *Feeling* : Freud and other psychologists assert that we retain pleasant experiences for a longer time whereas we forget painful experiences quickly. Even if all psychologists do not accept this view of the psychoanlysts no one denies that pleasant experiences are remembered longer than painful ones. With the passage of time man becomes indifferent to all past experiences wiped out from the board of memory.

8 *Attention* : While studying a subject, if greater attention is paid to the subject the retention will be better. On the contrary, the retention will be weakened by inattention.

9. Sleep : Some time elapses, after study, before the subject is retained in the mind and if this time of strengthening and retention is used for sleep, the memory traces get a good opportunity to be etched upon the memory. Psychologists differ in regard to the cause of the effect which sleep has on retention.

10. Mental Review : If some experience is incessantly contemplated upon its retention is better than one about which the mind does not trouble itself. Really speaking, by mental review a repetition of the subject is caused which strengthens retention.

11. Mental Set : A person retains those things for a longer period which coincide with his mental inclinations. A religious person remembers ideas relating to religion for a long time and a sensuons man remembers things of sexual interest.

12. Apperception : Apperception means the assimilating of learned subject with the knowledge already present. The retention of a newly learned subject is greatly facilitated if it is assimilated with the present store of knowledge to start with. And on the other hand a longer time is needed for retention if this assimilation is not effected.

13. Intention : This, too, is not far behind in making its presence felt, on retention. If a subject is learned with the express intention of being retained, the aim will be fulfilled with extraordinary success. But if there is no such intention, the subject removes itself from the memory of the person after sometime. Learning gathered with a view to appearing in the examinations is remembered better and things picked up here and there, in the ordinary course, are easily forgotten unless the person has a special inclination towards them.

But it cannot be concluded from this that any learning carried out for retention will of necessity be retained. The only thing implied is that retention is better if there is intention to retain the subject than when there is no such intention.

14. Massive Experience : The retention will be more if the experience is massive. If a person has ever loved, he never forgets it because it affects his whole personality and it is a fact that we remember that thing longer which affects us more. The meaning of the importance of experience is also implied in the extent of experience. A person retains that experience longer which is of greater value to him than other experiences. When the value attached to the experience is lost, the experience, too, slips out of the mind.

Favourable conditions in Recall

Generally the factors which favour retention also have a good effect on recollection. In other words, it means that recollection is better if the retention is good. But this is not always so. There are some factors which favour the recollection of experiences over and above the factor favourable to retention. The major ones are :

1. Suitable mental and physical condition : Recall is comparatively easy when both the mind and the body are healthy and fresh. And, adverse and indifferent physical and mental conditions hinder recollection.

2. Perfection of Clues : Recall is done with the help of clues which are stimulators of recall. To take an example if we learn a poem, we cannot recall it without the help of the title, the first line or the clue to some part of it, and clues are necessary for the recall of anything in the mind. The completeness of the recall depends upon the completeness of these clues.

3. Mental Set : The mental set of the individual, too, affects recall. A religious minded person remembers religious subjects easily while a sensuous person will find it easy to remember things associated with sex.

4. Context : Context too helps recall. When writing an essay, or talking, things pertinent to the context keep on suggesting themselves to the mind. The recollection due to context does not stop with only one thing, leads to another and this reminds the person of a third thing thus forming a chain of linked thoughts and experiences which often take a person so far a field that he forgets the context in which the conversation had originated.

5. Motives : When a person is under the extreme influence of a motive, he has such clear recollection of related incidents that he sometimes has hallucinations.

6. Feeling : Recollection is not immune to feelings of pleasure and pain. These feelings and experiences of pain and pleasure are recollected easily than indifferent feelings while pleasurable experiences are comparatively easily recollected.

7. Effort : This has a very significant effect on recollection. Unless the extreme limit of effort has been passed, recollection generally increases with the effort. When this limit has been exceeded or passed over activities becomes fragmented and recollection becomes difficult. In reality, it is the wrong type of effort which hinders recollection and it can take a variety of forms like the effort made in the absence the clues. But, if, on the other hand, the effort is made while the emotions are kept in check, and with confidence, keeping in view the clues, recollection will be affected favourably.

8. Absence of Inhibition—Recollection is better in the absence of any inhibition, because inhibition obstructs recollection and it may be caused by the conflict of the simultaneous arising of two activities or by repression and again, by fear or other emotions. A student forgets everything in the examination because he is nervous. A doctor cannot remember the name of the patient in whose treatment he was completely unsuccessful. Some times a name cannot be recalled while useless names are constantly remembered. These three examples respectively illustrate the effects of emotion, repression and conflict on recollection. The only solution is the elimination of the inhibition, if recollection is to be improved. These obstacles in recollection are called Reproductive Inhibitions. As a general rule, the conditions found favourable for retention and recall are equally favourable to recognition, and in view of this fact, only two conditions will be mentioned here :

Favourable condition in Recognition

1. Mental set—Recognition is by the mental set, in the manner in which other factors assist memory. Recognition is correct when the mental set is favourable and it is incorrect when the mental set is unfavourable. For example, we recognize the same voice if this element of expectancy is absent. But on the other hand, mental set may cause faulty recognition because you may take every knock at the door to be the one made by the person whom you are waiting for.

2 Confidence—This, too, is an indispensable element in recognition. In its absence even correct recognition becomes infested with doubt and a mistake is the outcome. In reality, only trial and error can regulate the amount of self confidence which one may have in a particular situation.

Q. 88. **Discuss how efficient remembering depends on—**

- **(i) The age of the learner,**
- **(i) The kind of learning meterial,**
- **(iii) The amount of practice,**
- **(iv) Emotional Poise.** (*Poona 1960*)

Ans. Please see the preceding question and its answer.

◆

Q. *89.* **What is meant by Association of Ideas ? Describe their various forms and their interrelation.**

(*Gujrat 1954, 52*; *Karnatak 1951*)

What are the laws of association ? How are they related to one another ? (*Bombay 1953*)

Write a short note on—Laws of Association.

(Agra 1959, 1961; *Gujrat 1957*; *Bombay 1964*; *Banaras 1965)*

Ans. We are reminded of the lock when we see the key and of a thin man when we see a fat man. A regular office-goer thinks of his office even on a Sunday at ten in the morning. The scene of a cycle accident long ago is recalled whenever the persons involved passes the scene of the accident. The theory of association solves the riddle of this relation of two experiences, one being remembered because the other one comes to the forefront of the mind.

Roughly speaking, there are two types of Laws of Association—Primary and Secondary.

Laws of Association

There are three Primary laws of association

1. Law of similarity.
2. Law of Contiguity.
3. Law of Contrast.

The secondary laws are of four types—

1. Law of Primacy.
2. Law of Recency.
3. Law of Vividness.
4. Law of Frequency.

The Primary Laws of Association are—

1. Law of Similarity—Upon perceiving one thing, people remember things resembling the object of their perception. Past experiences are recalled if a similar experience is undergone in the present. A person will be reminded of his dead beloved if he sees the least bit of similarity in the personality of any person he sees now. When describing beauty, people are often heard remarking that his nose is like some body else's while his eyes resemble those of a third person. The two persons, the one who is seen and the one who is thereby remembered, are never seen together and the association is therefore not due to proximity. There is association but it is not complete enough to cause the perceiver to mistake one for the other. In this case the association may be with any small part of the individual like the force, gait, way of talking, degree, education, wealth, name etc.

2. *Law of Contiguity*—Association results in two experiences which take place together. A person's friend habitually wears a cap and if he puts off his cap he will be curious to know the reason for this departure from his common practice. The friend reminds him of the cap because the constant vision of the two together associates the memory traces of the cap to those of the friend himself. This is an example of spatial contiguity, but besides this there is temporal contiguity in association. The flowers on the mango tree remind one of mangoes because the flowers precede the mangoes. In this way, the experiences which occur in a particular order in respect of time are also associated and the perception of one reminds us of the other.

The relation of the first and second lines of a poem is not the same as that of the first and third. Of course, the relation of the second to the third may be similar. Thus the first reminds one of the second and second of the third, but first line does not remind us of the third line of that poem.

3. *Law of Contrast*—Two mutually contradictory things, activities, persons, voices, etc , have a tendency to be associated into each other. One perception is reminiscent of that with which it is contrasted while one thought directs attention to the one in contrast. Extremely hot weather makes people think of cold or rainy weather. A darkskinned person reminds one of a fair complexioned person who in his turn, does the same for the dark person. Pleasure-pain, heat-cold, dark-fair, long-short, good-bad, upright inverted, and other contrasts go together and the memory or perception leads to the memory or perception of the corresponding one which stands in contrast but all psychologists do not accept this law of contrast to be a primary law of association.

These primary laws of association are closely related to each other. The law of contrast is based on the laws of similarity and contiguity. The collection of mutually contrasted experiences or the thoughts of the primary laws of association leads to the formation of a relation of association between them. All religions discuss such ideas as virtue-vice, hell-heaven, good-bad at the same time. Youth reminds of old age and old age of youth, not just because they form a contrast but also because there is a temporal contiguity too. Actually two contrasted things are mutually associated because they belong to the same species. Good and bad are qualities of work and virtue and vice are the results of the same. Hell and heaven are two forms of after life while youth and old age are two conditions of a life. Similarly, heat and cold are two forms of temperature just as pleasure and pain are of feeling. Thus vice reminds of virtue and not of heat while pleasure reminds of pain and not of cold. In reality these laws are so closely related that it is difficult to separate them. Sometimes, the law of similarity comes under the law of contiguity and sometimes the law of contiguity under that of similarity. The continuity of interest and attention relates all the memory traces in the mind. From the point of view of experiences of life, the law of contiguity comes first, the law of similarity is second while the law of contrast is of the least importance among the laws of association.

The secondary laws of association are—

1. *Law of Primacy*—If all the other facts remain undisturbed, the first impressions of learning or experience stay firm for a longer time. For example the first lines of a memorised poem or a song heard are remembered for a long time while the rest is forgotten.

2. *Law of Recency*—Other things being equal, the most recent impressions can be remembered with ease and alacrity. The concluding part of a story can be repeated with ease because these impressions are the most recent.

3. *Law of Vividness*—The recollection will be easier and more lasting if the experience is vivid.

4. *Law of Frequency*—If an experience is repeated very often in the mind, its recollection will be easy and it will stay for a longer time.

The secondary laws of association resemble those of retention and recall and are therefore different from the primary ones, which explain why association comes about. Associationists have tried to explain all mental activities of memory on the basis of association. But the laws of association work with the help of the interests and mental tendencies of the individual, in the absence of which the former are rendered ineffective. All things observed together are not associated in the mind due to contiguous perception. Thus the laws of association cannot take the place of the assisting factors in retention and recollection though they help to explain particular mental behaviour.

◆

Q. 90. **Describe the methods of affecting economy in memorising.**

(*Vikram 1953*; *Agra 1957*; *Alld. 1956*; *Rajasthan 1953*; *Karnatak 1965, 1964*)

Briefly state the experimental results regarding the economical methods of memorising. (*Madras 1962*)

How far is it possible to effect economy in memorising? Explain. (*Agra 1959*; *Poona 1965*)

What are the factors that help as a part of the process of remembering? Illustrate your answer giving two experiments.

(*Gujrat 1959*)

Ans. Many experiments were conducted, in psychology, with a view to effecting economy in memorising. In these experiments attempts were made, after experimenting with different methods of memorisation, to find that method by which the maximum material may be memorised in the shortest possible time. The economy of the following methods has been brought to light —

1. Recitation : The mental repetition of something is called recitation. Recitation makes the subject firmer than if it were read over and over again or repeated. Mental repetition is an active way of study. This saves time, at the same time assuring the longer retention of the subject.

2. Spaced and Unspaced Methods : As the name suggests, the spaced method of memorising is one in which there are time intervals in the memorisation and the subject is connected to memory after various sittings. On the contrary, the memorisation in the unspaced method is done at one sitting, without any intervals being introduced.

Many experiments were done in order to assess the economy affected by these two methods. In Ebbinghaus' opinion, the spaced method is more economical in the memorisation of meaningless things. Belborn and Villian opined that the spaced method is better in the memorisation of poetry and prose. Lashley considered the spaced method to be better while Cook approved of the unspaced method.

The economy in the use of either the spaced or the unspaced methods depends upon the abilities of the individual and the nature and extent of the material. A short poem of 8 to 10 lines should be memorised at one sitting. On the other hand, it is generally difficult to memorise a poem comprising 200 lines at one sitting because the possibilities of fatigue in attempting to learn so long a poem without rest are very great. Actually, the spaced method has many advantages over the unspaced method. Not only is the fatigue eliminated in the interval, but there is an opportunity to contemplate on the subject learnt. This helps to remove the monotony caused by long periods of study and it enables a person to keep his attention focussed on learning. The interval also eliminates any wrong activities and prevents their repetition. There is no general rule as to the interval between two sittings and it depends on the individual and the subject though it can be said that the interval should be long enough to remove the fatigue of the last sitting and strengthen the memory traces.

3. *Part and whole methods* : To study something by the part method is to divine it into parts before studying or memorising it. On the other hand, a subject is read according to the whole method when it is read from start to finish, as a whole. The experiments carried out to measure the superiority of these methods over each other have not yielded consistent results. Sometimes the part method showed better results while on other occasions it was the whole-method which excelled. Lotti Steffens concluded from his experiments on children and grown-ups who were required to study meaningless material, that the whole method saved 12 percent of time as compared to the part method. Contrary to this Pechstein, in an experiment, instructed 6 persons to learn 32 times employing the whole method, at the same time instructing 6 others to do the same by using the part methods. When the results were compared, the people using that part method in the memorising had taken less time than the other six. Pechstein concluded from

this that the part method is more advantageous than the whole method.

Actually the two methods part and whole are not contradictory. The application of one or the other method to the memorising of certain subject is decided by its extent and nature and by the ability of the individual. The whole method is better than the part method when it comes to learning a short poem but the part method proves more advantageous if the poem is a long poem. In this case, it would be advisable to go through the whole poem to start with, in order to relate the different parts of the poem and to follow this up by learning it a small piece at a time. It is generally better to use the whole method if the subject be difficult because it is easier to understand its different parts individually. But, at the same time, it is essential to use the part method in making sense out of the difficult portions of the subjects. Thus, time can be saved in using the whole method with a short subject and the part method in the perusal of a lengthy and difficult one, but in reality, the subject will have to act according to his personal capabilities besides his general law when he wants to decide on any one particular method. If we tire easily by the whole method, the part method is unquestionably better for us.

4. *Active and Passive Methods* : Memorising by utterance is the active method while mental repitition is the passive method. Many experiments have been carried out to measure the economy which these methods may effect. Gates, Ebbinghaus and his followers concluded from their experiments that the active method is better than the passive method.

Actually the active method is better than the passive in many respects :

1. The activity in memorising is increased.
2. The desire to learn and the effort are maintained while the relation between the various parts is established easily and naturally.
3. The subject is understood and the rythmical grouping and localisation of the various parts of the material also takes place.
4. This method forms a sort of pattern of the subject in the mind of the learner and anything missing from this pattern can be recalled easily.
5. This method reduces mental distraction. But this does not mean that the passive method is always less useful than the active

method. Actually, in learning anything new it is always advisable to memories it mentally before memorising it by reading it aloud.

5. *Rote and Intelligent Methods* : If a person is learning or memorising something without understanding it, he is said to be using the rote or unintelligent method. There is no apperception in this. On the other hand, by use of the intelligent method it involves the understanding of the subject and apperception does come about.

The experiments to measure the economy of either of these subjects reveal the consistent superiority of the intelligent over the unintelligent or mechanical method. The mechanical method does not form any association between the material and the thoughts in the mind and the matter is thus not strengthened, which results in its early elimination. On the other hand, the intelligent method lends firmness to the memory which becomes more permanent.

6. *Groupinga nd system* : Memorisation is considerably facilitated by rythm and grouping. It is eaiser to memorise poetry than prose but by the rythm scheme. One couplet contains enough meaning to be spread over several pages, but the rythm makes their memorisation easier.

7. *Association* : Association as a factor which keeps memorisation is no less important than the other. Suppose that we have to remember that the first step in the solution of arithmetical problems is the bracket and the successive steps are 'of', division, multiplication, subtraction and addition and in order to facilitate it, an association between 'B' and bracket, O and of, D and division, I and into or multiplication, S and subtraction and, A and addition may be formed, keeping in mind that the letters represent the first letter of each word. These letters should now be put together to form the word BODISA, which, when remembered, will keep this law in mind. Other associations in different subjects may be formed similarly.

Besides the method of memorisation detailed above, all the favourable factors in retention should be used comprehensively. The desire to memorise affords considerable assistance in remembering, because of the case in concentration which is absolutely essential. Rest and sleep also affect memorisation and due attention should be paid to them. The use of similar images, similar to the subject also helps memorisation and retention.

* * *

Q. 90. **What are the causes of forgetting ? Briefly discuss the theory of retroactive inhibition.**

(*Patna 1962*; *Rajasthan 1958*; *Gujrat 1958*; *Benaras 1965*; *Muzaffarpur 1964; Karnatak 1965*)

What is Retention ? Explain some theories of forgetting.

(*Gujrat 1960*)

What are the conditions of Remembering and forgetting ?

(*Gujrat 1957*)

Write a short note on : Forgetting.

(*Gujrat 1958*; *Karnatak 1949*; *Agra 1959*)

What is forgetting ?

Ans. The difficulty, or inability, of a subject in being remembered or coming to the consciousness is the mental activity, due to forgetting. It contradicts remembering and it is the failure of retention. Sometimes, almost too often, the thought is retained even though it is not recalled. Its inability to come to the conscious level can be attributed to a variety of reasons. Therefore, mere failure to recollect is not the same thing as forgetting. But lack of progress in relearning is definitely forgetting. Briefly, failure of recollection is partial or temporay fogetting, the failure of retention is complete or permanent forgetting.

Forgetting is a Passive Mental Process

According to Ebbinghaus, forgetting is a passive mental process. The activity continues automatically with the passage of time and the mind does not interfere with it. The activity of forgetting proceeds with good speed for some four to six hours after the learning of meaningless pieces but by the time 5 to 7 days have passed, the enthusiasm dies out and the activity is very slow, so much so that the difference between the forgetting of the 10th and 21st days is almost imperceptible.

Forgetting is an Active-Passive Process

Some psychologists have not accepted the opinion expressed by Ebbinghaus. They think that forgetting is an active passive process implying that the mind too takes a hand, the other being the passage of time, in forgetting. Forgetting is effected in no small measure by the mental processes which take place in the interval between remembering and forgetting. The least amount of forgetting takes place in sleep but if the person engages in some other activity it is comparatively more. Forgetting is also speeded up by some injury to the brain, consumption of alcoholic liquids, feeling, emotion, mental tension etc. In this way, forgetting is both an active and a passive process.

Causes of Forgetting

Many theories about causes of forgetting are current. Ebbinghaus attributes forgetting to passage of time while Freud and Bartlett are more inclined to blame the activities which take place in the interval of forgetting. Roughly speaking, many psychologists have given the following causes for forgetting—

1. *Interpolated Activity*—As far as the behaviourists are concerned, it is the interpolated activity after learning which causes forgetting, the extent of forgetting depending upon the divergence of these activities from the material learnt.

2. *Disuse*—The theory of disuse postulates that any learnt activity or accumulated knowledge will be gardually forgotten if it is not regularly practised. Psychologists who do not agree with this view assert that forgetting is due not only to disuse but also to the activities after learning.

3. *Retroactive Inhibition*—Some learning tends to contradict some previous learning, a tendency entitled retroactive inhibition, meaning the fatal effect of interpolated activity on learning. This theory was first proved by Muller and Pilzecker. Retroactive inhibition is specially affected by the following four things—

(a) *Similarity between past learning and interpolated learning*—Experiments have proved that the retroactive inhibition will increase with similarity with the past learning and interpolated activities.

(b) *Difference in quantities of past learning and interpolated learning*—Retroactive inhibition will be more if the quantities of past learning and interpolated learning are vastly difierent in favour of the latter. But if the latter is less, the hindrance will also be less.

(c) *Temporal relation of the interpolated activities*—If the interpolated activities take place soon after the previous learning the hindrance will be accentuated. The most harmful interpolated activities are those which take place either immediately after learning or just before recollection while the least harmful is the one taking place in the middle of the retention period.

(d) *Intelligence and age of the learnor*—Retroactive inhibition is reduced with every increase in the age and intelligence of the learner.

The two factor theory expounded by Melton and Lackun singles out two factors as having extraordinary effect on retroactive inhibition. The learning of a new thing causes the forgetting of the old by hindering its relearning and the other factor is the competition between the old and new memory traces.

4. *Represssion*—The psychoanalysts believe that the major cause of forgetting is repression, *i. e.*, the pushing of the experience or thoughts into the unconscious. Freud said that it is natural in human beings to repress sorrowful thoughts because of the pain they cause if remembered. It was the theory of repression on which Freud founded his successful analysis of everyday forgetting in writing, speaking, recognising and the forgetting of the mental patients but the description of forgetting, in things other then these, cannot accept repression as the sole cause.

5. *Factors affecting learning*—All the factors which affect learning also affect forgeting because forgetting is the unlearning of a learnt subject. The major factors are—

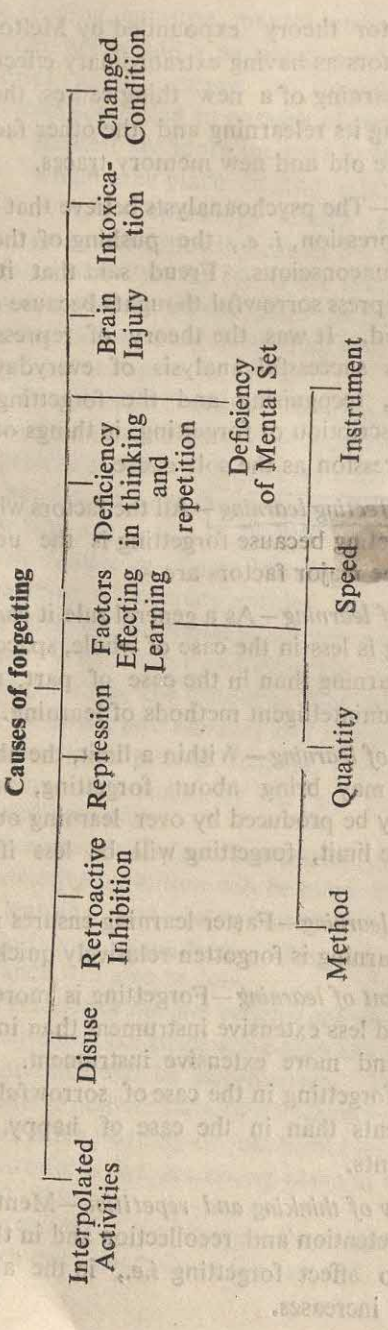
(*a*) *Method of learning*—As a general rule it can be said that forgetting is less in the case of whole, spaced, active and insight learning than in the case of part, unspaced, passive and unintelligent methods of learning.

(*b*) *Quantity of learning*— Within a limit, the absence of over learning may bring about forgetting, while the same effect may be produced by over learning outside the limit. Inside the limit, forgetting will be less if there is over learning.

(*c*) *Speed of learning*—Faster learning ensures retention while slower learning is forgotten relatively quicker.

(*d*) *Instrument of learning*—Forgetting is more in the use of a small and less extensive instrument than in the use of a bigger and more extensive instrument. Similarly, there is more forgetting in the case of sorrowful or meaningless instruments than in the case of happy or meaningful instruments.

6. *Deficiency of thinking and repetition*—Mental thinking and repetition assist retention and recollection and in the same manner these factors also affect forgetting *i.e.*, in the absence of these factors forgetting increases.


Causes of forgetting
Interpolated Activities
Disuse
Retroactive Inhibition
Repression
Factors Effecting Learning
Deficiency in thinking and repetition
Brain Injury
Intoxica-tion
Changed Condition
Method
Quantity
Speed
Instrument
Deficiency of Mental Set

7. *Deficiency of the Mental Set*—Mental set is another factor of assistance in the retention and recollection of a subject so that its greater concurrance will reduce forgetting.

8. *Brain Injury*-Often when a person suffers a brain injury he forgets many incidents and experiences and the extent of the forgetting depends upon the seriousness of the injury.

9. *Use of Stimulants*—Wine and other stimulants have a detrimental effect on the brain, because they weaken the memory traces. Thus forgetting will be increased if such intoxicants are used.

10. *Altered Stimulus condition*—If there is an association between the stimulus and the situation of the stimulus, then forgetting is facilitated by any change in the situation or condition of the stimulus. People who stay abroad for long forget their correct dialect.

Besides the causes mentioned above, the factors which influence retention and recollection may also cause forgetting. In brief, every factor which hinders memorisation causes forgetting. The chart given on page 220 makes clear the causes of forgetting.

* * *

Q. 91. **Is retention same as memory ? What are the most effective methods of memorising ?** (*Gujrat 1958*)

Ans. Memory starts with learning, and includes other activities, such as retention, recall and recognition. Memory may be there even when there is no recollection because it is often seen that some thing comes to the mind suddenly after much unsuccessful exertion to recall any thought or experience. There is no limit to this type of experience because things forgotten for many years, come back to the mind all of a sudden. Thus the failure of recollection does not prove the absence of memory. Similarly, recognition is no conclusive factor or condition because there may be memory without it. It is a common experience that one does not easily recognise a person on seeing him after a long lapse of time. Persistant reminding make the mem ry traces conscious and then one recognises that pe son. But, memory is not possible if there is no retention. The question of recalling or recognising something which never found an entry into our mind does not arise. We may, therefore, identify retention with memory.

Refer to question 89 for the effective methods of memorisation.

Q. 92. **Distinguish between recall and recognition. What are the factors which (a) influence forgetting and (b) determine recall ?** (*Bombay 1958*; *Alld. 1958*)

Ans. For the Answer to the first part of the question, please refer to the first question in the chapter and the answer to that question.

For the factors which influence forgetting and determine recollection, see the answer to the questions No. 89 and 90.

* * *

Q. 93. **What are the various stages in the process of memorisation ? How can memory be improved ?**

(*Agra 1956*; *Bombay 1958*)

Ans. See the answer to the first question in this chapter as well as the answer to question No. 89.

* * *

12

IMAGINATION

Q. 94 What is imagination ? Explain different types of imagination with examples. *(Gujrat 1959)*

Describe the main forms of Imagination with special reference to dreams. *(Alld. 1957)*

Define imagination. What is its role in invention and aesthetic appreciation ? *(Madras 1961)*

Write in detail the nature and points of imagination. *(Agra 1962; Vikram 1962; Alld. 1957)*

What is Imagination ?

Ans. Woodworth calls imagination a mental manipulation. Suppose that a person has to decorate a room with furniture. One way of doing it is to move every individual piece of furniture all over the room and to find a suitable place for it. This will only mean a wastage of a lot of time, but there is little possibility of that person's success in achieving his aim because the correct place for a piece of furniture can be defined only in the background of the rest of furniture. We cannot know the most suitable place for a chair in an empty room. The question of its most suitable position arises only when other pieces of furniture have also to be placed. Decoration by this method is bound to be tedious and it is therefore, better to turn to imagination. If now the person takes up a strategic position in the room, from where the whole room is visible, he can picture the room in his mind and decide the location of the various pieces of furniture by moving them around in his mind. This work involves mental manipulation as a substitute for physical manipulation. It is thus an example of imagination.

Imagination has been classified in a number of ways, the most general classification being, reproductive and creative.

1. Reproductive Imagination—Reproductive imagination is directed by external suggestions. Students of history, to take a

Classification of Imagination

common example, are able to imagine incidents which took place some thousands of year ago. The vividness of this imagination will be more or less according to the vividness or otherwise of the description. Similarly, when a person loses himself in some novel which he is reading he feels, for some time at least, that he is seeing everything with his own eyes. Even when people are moving around in historical places, incidents related to them present themselves to the spectators through their imagination. In all these examples, the basis of imagination is external, the imagination being a mere reproduction of external objects and not an individual or original construction. These are, therefore, examples of reproductive imagination.

2. *Creative Imagination* : But, if some person writes a story, poem, drama, it is not merely a reproduction of external situations but it has an additional element of original imagination. Creation is not the same thing as reproduction. The difference between creative and reproductive imagination is the same as that between an author and his reader. The poet, author, artist and the like depict their emotions and feelings through the medium of creative imagination.

Creative imagination, too has been divided into two classes : Passive creative imagination and Active creative imagination. These types of imagination are described as follows :

(*a*) *Passive creative Imagination* : Sometimes and as a matter of fact quite often, when a person's brain is unoccupied, imaginative ideas flit through the mind one after the other. A person has to make no effort in their coming or going. This is called passive creative imagination because in this state the mind is passive. Among instances of passive imagination are included dreams, day dreams and other imaginations of the type. Some sport is also included in the class, due to the passivity of imagination in their case, but most of the organised games cannot be classified under this heading. Now chess, for example, calls for active imagination. Imagination is passive in dreams and day-dreams. The aim of day dreams is the fulfilment of desires through the imagination instead of effort. The person imagines himself to be the hero of his day-dream. The conquering hero fulfils his desires through victory while the suffering hero does the same through suffering, Adler attributes these desires to power while Freud considers them to be related to sex. These day-dreams are useful to man in as much that they fulfil unfulfilled desires and restore a balance of thinking. In reality, every person sees day-dreams but if it becomes abnormal and an excuse to escape from the realities of life, it causes grave harm to the individual. The dream, too, is a similar passive creative imagination. Freud says that even dreams fulfill unsatisfied sex desires. According to other psychologists external and physiological factors also influence dreams.

(*b*) *Active creative Imagination*—In the case of active creative imagination the subject imagining various things has predetermined goal in view. The reality and reasoning are not disregarded. From the view point of aim or goal, active creative imagination can be classified as (1) pragmatic and (2) Aesthetic imagination.

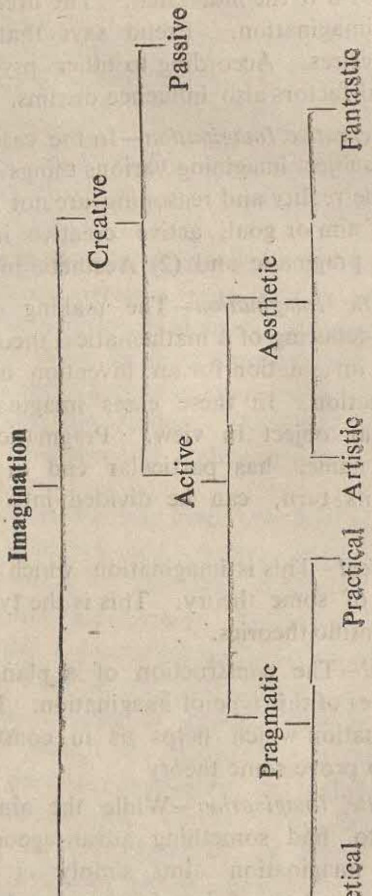
(*i*) *Pragmatic Imagination*—The making of a plan for a big bridge or canal, deducing of a mathematical theory or the exercise of the faculty of imagination for an invention are all examples of pragmatic imgination. In these cases imagination was guided by some particular object in view. Pragmatic imagination, as is implied in the name, has particular end in view. Pragmatic imagination in its turn, can be divided into two classess, as follows—

1. Theoretical—This is imagination which helps in the proof or classification of some theory. This is the type of imagination employed in scientific theories.

2. *Practical*—The construction of a plan for a bridge or a canal are examples of this type of imagination. Practical imagination is the imagination which helps us in constructing something useful and not to prove some theory.

(*ii*) *Aesthetic Imagination*—While the aim of the pragmatic imagination is to find something advantageous, on the other hand, aesthetic imagination aims simply at the creation of beauty. This is the type of imagination employed in literature, music and art. A poem, created by a poet aims only at the creation of beauty and not any other practical aim. It is not necessary to include all literature, music and art in this class but it is undoubtedly true that these are the creation of beauty. Aesthetic imagination is of two types.

(*a*) *Artistic*—In the artistic aesthetic imagination, beauty has a specific pattern and its description in literature or painting,


Imagination
Reproductive
Creative
Active
Passive
Pragmatic
Aesthetic
Theoretical
Practical
Artistic
Fantastic

is attemtped. Thus, even though artistic aesthetic imagination is as free from the limitations of the external world as possible, it is still directed towards the fulfilment of some pre-determined aim of the artist. In the writing of a story the imagination of the author does create beauty but even then some aim and pattern is concealed in it. It works within a pre-determined frame-work.

(*b*) *Fantastic*—As opposed to artistic imagination, fantastic imagination has no direction, pattern or aim and everything is controlled by the fantasy of the individual. Fairy tales and fantastic poems are examples of this type of imagination. Though this too, results in some advantage to the society or the individual yet as is the case of artistic imagination, fantastic imagination has no pre-determined end in view.

The preceding chart clarifies this classification of imagination. For dreams, please see Q. Ans. No. 31.

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Q 96. **Distinguish between the exercise of Imagination and thinking. Is language essential to thinking? Discuss.**

(*Punjab 1959*)

Difference between Imagination and Thinking

Ans. Though both thinking and imagination are mental activities, they are not identical. Woodworth calls thinking a mental exploration. Thinking starts with some problem and its solution is searched for, and search being mental and not physical. If, for example, the problem is one of arranging furniture in the room there is nothing to be explored. There is no problem, the only thing needed is imagination. Thus, what is needed is imagination and not thinking. But if, for some reason the person is incapable of setting the furniture, the problem of finding someone will arise. He will have to find someone, and if this hunt is mental, it is the activity of thinking. Many doubts arise in his mind, as to who will bring the furniture and in order to come to some decision he examines the merits and demerits of every such person. While coming to this conclusion he is compelled to use not only his imagination but also perceptions, signs, language, concept etc.

Thus imagination is mental imagery, while thinking is mental exploration, and both have dissimilar instruments and use. Imagination is independent while thinking is a controlled mental activity. Imagination results from a free association of thoughts but this association is controlled, when the activity is thinking. Thinking is the search for solutions of problems. Even though imagination has some aim, it generally gives little assistance in the solution of problems. Thinking can take place without sensation and verbal symbols but not imagination. Thus, thinking is at a higher level than imagination.

For the importance of language in thinking, see the next chapter.

* * *

Q. 97. **What are the different types of imagery.**

(*Osmania 1962*; *Baroda 1963*)

Write a note on types of Imagery.

(Bombay 1964; *Banaras 1964*)

What is imagery ? Describe the different types of imagery and determine their place in thought. (*Bombay 1950*)

Describe the types and function of images. (*Karnatak 1965*)

Ans. Many symbols partake of thinking and imagination. Image is just such a symbol, though its stability, vividness and intensity are less when compared to perception. Image is also different from concept. The difference between Image and concept is explained as under

Difference between Image and concept

1. Concept is general and formless while an image is specific and has a form. 2. Thinking of necessity includes concepts, but images are not an essential part of thinking. 3. Images are an important part of imagination, but concepts are used comparatively infrequently.

Images can be classified in many ways. The different major types are—

Types of Images

1. After Image—Our sense organs continue to feel sensations from objects for some time after the sensation has been received. This is called after sensation or after image. These continue only for a few seconds after the stimulus has been removed.

2. *Eidetic Image*—These images are as stable, vivid and intense as is the perceived knowledge. These types of images, similar to perception, are found more in children.

3. *Memory Image*—The vividity and extensity is less in a memory image than in the eidetic image. The points of similarity between it and preception are very few. As a general rule our mind has more memory images than other types of images. These images also serve as reminders of the place and mode of the acquisition of the experience.

4. *Imagined Image*—The memory image has the same form which the perception exhibits but the imagined image results from the distortion of perception. Even though it is not a novel creation, it surely is a reorganisation and re-interpretation of experiences. The image of Ravana, for example, will be an imaginary image because people do not have ten heads, in the objective world. In the same way the image of Narsingha will be an imaginary image, formed by the distortion of the perceptions of a man and a lion. These imagined images are found in abundance in human life, especially in day-dreams and the like which abound in these.

5. *Dream Image*—These images are not identical with imagined images. The unconscious mind plays a part in this. These images are often symbolic. In Freud's opinion rivers, mountains, trees, depressions etc., are symbols of the different male and female sex organs.

6. *Hypnogogic Image*—These images are aroused when the person enters the subconcious state from the waking state. The images in this state of trance appear real and are distinct and intense.

7. *Sensory Images* : A person generates sensory images equivalent to the number of sense organs. Thus, the following sensory images are found in human beings.

(*i*) *Visual Imagery* : These are dependant upon the knowledge received by the eyes. People with intense visual imagery remember individual experience for a long time.

(*ii*) *Auditory imagery* : These images depend upon the sensations received by the ears.

(*iii*) *Gustatory Imagery* : In this, taste is experienced even in the absence of external stimuli.

(*iv*) *Tactile Imagery* : There is feeling or experience of heat or cold or weight even in the absence of external stimuli.

(*v*) *Mobile Imagery* : This results in the feeling of work or motion even when either or both are not taking place.

These sensory images are not equal in quantity in every person, they differ from individual to individual.

Importance of Images in human life

Images are of no small importance in human life and different activities utilise these images. For example dreams, day-dreams, imagination thinking etc., are activities which include images. Images render assistance to the solution of problems. To take an old example, let us suppose that we have to arrange furniture in a room. One approach would be to apply the trial and error method and to shift the tables and chairs all over the room in order to see their correct relative positions. It will not only take up a lot of time but the result too, will be unsatisfactory. Another way of doing this work, is to use images in putting the furniture in different places. This is imagination, or, as Woodworth would have it, mental manipulation. This solves the problem of the arrangement of furniture easily and more efficiently. This memory and other images help to solve many other problems of life.

* * *

Q. 97. **How would you distinguish between memory and imagination ? What are the various kinds of imagination ?**
(*Osmania 1962*; *Agra 1960*)

Distinguish imagination from memory and describe the various types of imagination. (*Bombay 1957*, *53*; *Gujrat 1955*, *57*)

Ans. Memory is the retention of some past incident or past perception in the mind, and its identical recollection. You have seen Lucknow (a supposition), and can tell someone many things about the town and can recognise its buildings and can recount memorable incidents of the place, all the meaning that you have a memory of Lucknow in your mind. It is necessary for this that you should have visited Lucknow, but this is unnecessary for a mere imagination of Lucknow. You may say many things about Lucknow from your imagination but it would not be recollection. You imagine Lucknow either on the experiences of some other big city or merely on inference. It is imagination, not mere reproduction but also creation. There is reproduction in memory. This is the reason why memory is sometimes called reproduction imagination. On the other hand, imagination is called productive or constructive imagination in order to point out the differences between memory and imagination. Thus, briefly, memory is the reproduction of past experiences while imagination is the giving new form to these past experiences by mental manipulation.

Please see the answer to question 94 for the various types of imagination.

* * *

Q. 98. **Write short notes on : (a) Phantasy (b) Delusion.**
(*Agra 1954*)

(A) Phantasy

Ans. Phantasy is that state of mind in which there is utter disregard of reasoning and reality. Many human desires which are not satisfied in the world of reality pass into the unconscious world and there generate many mental complexes which do not find satisfaction in the external world. They find the desired satisfaction in phantasy. Day dream is an element of phantasy. Extremely religious people, abnormal persons, and mental patients live in a world of phantasy. This interferes with their adaptation to the environment and, too much of phantasy makes a person extremely unrealistic. Permanent phantasy is a symptom of insanity.

(B) Delusion

Illusion is false knowledge while permanent false belief is delusion. It is not the same as hallucination. Hallucination is subjective perception but delusion is subjective belief. For example let us suppose that Mr. Nehru visits a lunatic asylum. One demented person inquired of his identity from him. He replied. "I am Nehru." The demented person laughed uproariously upon this and said, "When I came to this lunatic asylum, I, too was Gandhi." Thus his identifying himself with Gandhi is an example, of delusion. Any person may similarly think himself to be some famous or great man such as Napoleon, or Hitlar. All these are instances of Delusion of Grandeur, a malady in which the individual takes himself to be some great person. There is another type of delusion beside this and it is the Delusion of Persecution under the influence of which the individual labours under the delusion of some loss, accident or some vicious plan. Whenever he sees someone laughing, he feels that he is being made fun of. Whenever or wherever two people whisper to each other, he feels that some plot is being hatched against him. The least bit of diminution in the taste of the food is looked upon with a suspicion of poisoning. Delusions indicate abnormality and hinder a person's adjustment to the environment. Don Quixote was a victim of such a delusion. He thought that windmills were giants who had captured beautiful girls, and he attacked them.

Q. 99. **Write a short note on—After Images.**
(*Punjab 1957; Bombay 1958; Gorakhpur 1962; Agra 1963*)

Ans. The scenes and incidents of a picture remain for quite some time on the memory screen in the from of images, after the picture is seen. These images are far more vivid and intense than the images of long past experiences stored in our mind. This type of vivid image which remains after the stimulus has vanished from the sense organ is called 'After Images'. It is more intense than a memory image, but comparatively less permanent. It is intense immediately after the experience but it gradually becomes indistinct. When for example, you listen to some good speech the words echo in your ears for a long time afterwards. These words become indistinct with the passage of time.

Q. 100. **Bring out the difference between belief and imagination and explain the conditions of belief.** (*Bombay 1958*)

Belief and Imagination

Ans. Belief is an indicator of reality. We do not have doubt in any object or thought which we believe. On the other hand, imagination is in no way related to reality and the person imagining is aware that the ideas or objects imagined by him have no connection with reality. Belief is not necessarily mental, the element of feeling being prominent. It is also closely related to determination, because determination is guided by beliefs.

The conditions which help formation of beliefs are generally divided into three classes—

(i) *Intellectual*, (2) *Emotional and* (3) *Conative.*

1. *Intellectual Conditions*—The following are the intellectual conditions in belief—

Conditions in belief

(*a*) *Perception*—It is quite natural to believe in something preceptionally known. Active pressure and solidity arouse belief.

(*b*) *Introspection*—Just as belief in external objects is found upon perception, similarly belief in the internal elements finds its basis in introspection.

(*c*) *Memory*—Every person generally believes in his memory. In this way memory often forms the basis of belief, in some incident or object.

(*b*) *Imagination*—Children believe in the reality of the characters of the story they listen. The scientists believe in their intellectual hypothesis.

(*e*) *Reasoning*—Reasoning gives birth to new beliefs. Knowing, for example, that England is a cold country it can be logically accepted that hot things will be in vogue there.

2. *Emotional Basis*—The following are the emotional conditions of belief.

(*a*) *Strange Emotions and Lust*—We call a person bad because we hate him. Strong emotions and lust are thus the foundations of beliefs.

(*d*) *Suggestion*—If a suggestion is made to a person who is susceptible to suggestions, he will believe the suggestion. The belief in magic is formed in this way.

(*c*) *Temperament*—This, too, is a basis of belief. Optimist and pessimist, irritable and pleasant temperaments lead people to different beliefs.

3. *Conative Basis*—The following are the conative basis of beliefs.

(*a*) *Instinct*—The belief of persons in God, the next world, rebirth, etc. are based on instincts.

(*b*) *Strong desire to will*—William James believes the will to believe to be the cause of belief. A diseased person, with a strong will or desire to improve, believes in medicines no healthy man would rely on.

(*c*) *Activity*—Activity also is a foundation of belief. When we try to achieve some goal, we believe in the activities which are the means to it. In Stout's words "Activity should be the basis of belief just because belief is the basis of activity. To try for an aim is to make attempts for those means which are essential to the aim."

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13

FATIGUE

Q. 101. **What do you understand by Fatigue ? State and describe the various kinds of fatigue.** (*Agra 1958; Alld. 1953*)

Write a short note on : Fatigue. (*Agra 1954*)

Ans. Fatigue may be defined as a reduction in the capacity of the mind or the body, and a condition in which a person cannot work he or works less. A tired animal lies inactive.

What is Fatigue ? In Hepner's words, "Fatigue is the reduced capacity of our organism to wory properly, that capacity is accompanied with some feeling also which is known as feeling of fatigue." A person naturally experiences a feeling of fatigue after working for a number of hours. The time for which a person can work, at a certain occasion, is another matter but every person feels tired after having worked to his full capacity, because by this his capacity to work is reduced. Decrease in capacity to work accompanies an increase in fatigue. Speaking briefly, fatigue is the reduction of capacity.

Kinds of Fatigue

Fatigue is of many kinds just as capacity takes a variety of forms. It is generally believed to be of four kinds :

1. Subjective or Mental.
2. Objective or Physical.
3. Nervous.
4. Boredom.

1. Mental Fatigue : Mental work, or any kind of strain on the mind reduces the capacity of the mind for work and causes mental fatigue. Thus in mental fatigue, the mind tires or the capacity of its minute fibres for work is diminished.

2. Physical Fatigue : This type of fatigue results in the reduction in the capacity of the muscles of the body and a feeling of fatigue. In this way, physical fatigue is brought about by physical exertion.

Even though the body feels tired due to mental exertion which should normally result in mental fatigue, yet on account of the close relation of the two, it also produces physical fatigue. Thus mental fatigue is unavoidable and it leads to physical fatigue.

3. Nervous Fatigue : The subconscious mind of man is extremely active and since in the process of its work it consumes energy in due course of time it naturally produces a feeling of fatigue and depression. Nervous fatigue can also result if the subconscious is extremely tired due to mental conflict.

4. Boredom : Boredom and fatigue are not identical. Fatigue is the result of the use of energy but boredom is the feeling of tiredness due to an incomplete or improper expulsion of energy. If you go to a friend and he is busy in some work you become bored. Similarly you get bored if a person persists in talking about the same thing day after day. Boredom results in restlessness, a state induced by our inability to find proper use for our capacity for work as is the case with the young lady who gets bored with her unemotional lover because she does not get a chance to express her feelings.

Means of removing fatigue

Many experiments have been carried out in psychology to discover ways and means of getting rid of fatigue, and these experiments have evolved the following ways :

1. Sleep : Sleep is by far the best means of banishing fatigue, because in sleep both the fibres in the mind and the fibres in the body are at rest while waste matter is expelled from the body. The capacity of the mind and the energy thus gained replaces fatigue.

2. Relaxation : Sitting or lying in a relaxed position also eliminates fatigue because both the body and mind are at rest in a comfortable posture and the mental as well physical capacity is thus restored.

3. Balance of Work and Rest : As we have mentioned earlier, too much of work, over work and no work at all, cause fatigue. Thus, for the elimination of fatigue, work and rest are equally necessary. It is best to alternate rest and work in a manner that should bring about a proper balance.

4. Change in Work : Due to the fact that different types of work cause strain on different parts of the body, more work is possible if the type of work is altered every now and then. Same type of mental exertion continued for a long time also induces boredom because our other capabilities do not get a chance of expression. Thus change in work is necessary to avoid and eliminate physical and mental fatigue.

5. Recreation—Recreation creates an opportunity for the unexpressed capabilities to express themselves, at the some time it reduces mental and bodily tension. Thus it is a useful means of avoiding fatigue.

6. Change in Emotions—Another factor which introduces fatigue is an unrelenting application to work and a consistent, hard, and laborious way of life. Thus a change of emotions once in a while will also relieve fatigue.

These factors which eliminate fatigue generally apply to everyone but a person may pick and choose according to his own interests. There may be other factors especially suited to persons with particular tastes, inclinations and interests.

Types of Fatigue

There are four types of fatigue—mental, physical, nervous and boredom. The following are the respective signs of these four types of fatigue—

1. Mental fatigue—The following are the signs of mental fatigue—

(i) Difficulty in focussing attention.
(ii) Reduction in interest in physical work.
(iii) Fall in respiration rate and temperature.
(iv) Heaviness and headache.
(v) Lack of physical equilibrium.
(vi) Decline in the power of discrimination and determination.
(vii) Restlessness and irtitability. Non-acceptance of suggestions.

2. Physical Fatigue—The following are the signs of physical fatigue—

(i) Increase in blood circulation.
(ii) Quick and difficult breathing.
(iii) Increase in the body temperature.
(iv) Inability to do mental work.
(v) Pain in some parts of the body.

3. Nervous Fatigue—The following conditions indicate nervous fatigue—

(i) Abnormal behaviour.

(ii) Fatigue without work.

(iii) Inactivity, sluggishness, restlessness,

(iv) Lack of fatigue even after hours of working,

4. Boredom—The following conditions are indicative of boredom—

(i) Restlessness.

(ii) Absence of opportunity to express the desire for saying or doing something.

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14
THINKING

Q. 102. **What is thinking ? Analyse the process of thinking in solving a problem with the help of a suitable example.**

(*Banaras 1965*; *Muzaffarpur 1965, 1964*)

Write a short note on—Nature of thinking.

(*Bombay 1958*; *Patna 1962*)

Distinguish between a 'guiding idea and a hypothesis.'

Bring out clearly the salient features of problem solving behaviour. (*Madras 1962*)

Analyse the process of thinking. Explain the relation between thought and lauguage.

(*Osmania 1962*; *Bihar 1962*; *Alld. 1958*; *Gujrat 1958*; *Bombay 1964*)

Thinking in the mental solution of problems

Ans. Thinking, which is a complex mental activity, cannot be easily separated from learning, memorising, imagining, etc. As Warren puts it, "Thinking is an activity concerning ideas. It is symbolic in character, initiated by a problem or task which the individual is facing, involving some trial and error but under the directing influence of that problem and ultimately leading to a conclusion or solution of the problem." Thus, the activity of thinking originates from some problem, and is the response of the individual to this problem. The solution of the problem takes place internally and not in the form of external activities. Thinking starts with a problem and concludes with its solution. This activity of thinking continues till either the solution is found or till the person becomes fatigued by the effort. There cannot be any thinking in the absence of some problem. Problems in human life come in an incessant stream and they have to be solved by thinking. No general rule can be laid down as to the circumstances which create problems. The reactions of the same individual to different situations and of different individuals to the same situation are not identical or even similar. One situation may appear problematic to one person while a number of other persons may find nothing of the nature of a problem in it. The problems of different persons like philosophers, scientists, and religious minded persons are dissimilar. The problems of a logician appear meaningless to the uninitiated but the logician is immersed day and night, in a search for their solutions. Some problems are theoretical while others are practical. The problems of study in B. A. are practical but the problems of the logician are theoretical. The solution of practical problems assists day to day life while the solutions of theoretical problems lead to the satisfaction of curiosity.

Forms of thinking

Thinking, the mental solution of problems, makes use of the symbols of objects instead of the objects. Thinking attempts the solution of problems by employing the trial and error method. There is a kind of flow in the activity of thinking, one problem leading to the thinking of another by reminding the person of that other problem. Thus many things come to the thinker's mind when he is thinking. The instruments of thinking—images, imagination, signs, indications, and such-like are also internal. Thinking continues to be an internal activity unless and until it takes the form of verbal thinking.

Thinking is symbolic behaviour

The aim of purposeful thinking may be discovery, but it may equally well be invention. When there is a problem, either a solution to it is found or, instead, some new idea is found. The inventions makes use of both analysis and synthesis. There is fore sight in thinking because the remotest possibilities of the future are thought of in advance. Hind sight is also an element of thinking because it makes use of material collected from past experiences. Thinking is done with the help of abstract signs of real objects, which adds to thinking the element of abstraction. The major form of thinking is reasoning, which works on the basis of trial and error. It economises time and energy because of mental research instead of motor exploration.

Instruments of Thinking

Thinking calls for the assistance of percepts, images, concepts, signs and formulae, of which it makes abundant use. These are the essential instruments of thinking.

1. Perception

Percepts are important factors in thinking, affording material to it. They also stimulate thinking. Suppose we have seen our friend stealing something. This perception will set us thinking in order to discover ways and means of preventing our friend from this bad act. Many other percepts will assist in this thinking. We will, with the help of memory, try to recall the perceptions of the past behaviour of our friend in order to see the causes which may have set him on this wrong path of life in the hope of discovering ways and means which may be expected to cure him.

2. Image

Image, too, is a kind of symbol which includes the faint recollection of perceptions. Past experiences of an individual move around in his mind in the form of images, Images may be recalled through a conscious effort but they also flash on the mind involuntarily. Many experiments have indicated that images are not quite as essential to thinking as they were previously considered to be. The use of images in thinking depends in no small measure upon the method of thinking which the individual employs. Some people use other symbols in their thinking, instead of images. It is not essential that a singer must have auditory images in order to be good. Thinking in philosophy and political science makes better use of words than images. Similarly subjects like arithmetic make very infrequent use of images. Sometimes a person experiences difficulty in making the other person comprehend his thoughts just because they differ in their ways of thinking.

3. Concept

Concepts are the abstract froms of past experiences. Humanity is the quality of the human species, found equally in all human beings. A concept is a general idea and, as the example makes clear, it is founded upon perception. The concept of humanity cannot be formed without the perception of human beings, because humanity is the common element in the perception of human beings. An abstraction of humanity from human beings is necessary in order to proceed from perception to concept. Concept, formed with the help of abstraction, is mental. Concepts extend the limits of thinking to include both the past and the future. Reasoning cannot be done without concepts, which are both abstract and general. These are the indispensable elements of thinking. Classification of objects is done on the basis of concepts. While it differentiates between different classes of objects and creatures, it also show the similarity between individuals of the same class. Conceptual thinking takes less time because it facilitates the thinking of innumerable things by a few concepts. Thus one concept is the symbol of many objects. But all concepts are not equally extensive. For example creature is more comprehensive than human beings which in its turn, is more comprehensive than Indians. Indians are included in human beings who are included in creatures.

Concepts are made use of in thinking mainly with the help of symbols, which are the representatives of general thoughts.

4. Symbols

Whenever our thoughts turn to human beings, the human figure which occupies our mind is a general figure, not that of any specific person. The image of a dog is a symbol of dogs in general. One or its numeral equivalents are symbols of unity while two or 2 symbolises dualism. The sound of a whistle may be the symbol of a policeman or a watchman. The noise of the fire engine is the symbol of fire. Thus the use of symbols in thinking saves time and energy.

Symbols and Signs

Symbols and signs are intimately related. Symbols change to signs. In daily behaviour symbols are used extensively in the form of signs. The whistle of the watchman is a sign of his presence, and the green flag is a sign of the departure of the train. Arithmetic makes extensive use of signs e. g. + indicates addition, — subtraction, × multiplication. Similarly a^2 means $a \times a$. The use of symbols as signs simplifies thinking ever further. There is some difficulty in establishing the symbol of the concept and the sign for the symbols in the beginning but once this difficulty is overcome the activity of thinking proceeds at a greater speed. Once we get used to them, we make use of these symbols without any conscious thought about their meaning or representation. The learning of a language presents an initial difficulty in the recognition of letters, but their subsquent use in understanding the meanings and in thinking is greatly facilitated. Though the understanding of signs in algebra takes some time, problems can easily be solved afterwards. The facility in the use of language in thinking is due to the use of symbols. The letters are symbols in language, but in other language picture serve the same purpose. Some languages replace symbols by indications.

Besides the symbols and signs, the use of formulae also results in the economy of time and energy. One small formula contains a world of meaning. Comprehensive use of formulae is made in arithmetic and science. In Geometry, for example, the formula π^2r represents the relation between the radius and the circle. The compound 'water' is represented by H_2O, which means that two atoms of hydrogen and one of oxygen combine to form water.

5. Formula

Thus, thinking makes very extensive use of percepts, images, concepts symbols and formulae Among them, concepts, symbols and formulae indicate the importance of language in thinking.

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Q. 103. **Write a short note on : Spearman's Laws.**

Ans. Eduction plays an important role in thinking. In thinking, the individual organises knowledge, which process necessitates the use of memory and imagination. In thinking a person educts his different experiences related to a situation. Spearman has advanced two laws in this context.

(*a*) *Eduction of Relations* : When some objects are placed before a person, he perceives many relations between them such as proximity, distance, etc. These are the real relations of the objects. Other real relations may be the following :

1. Quality : When sugar is tasted a paculiar taste called sweetness is experienced. Sweetness is a quality of the sugar. The two have a real relation of a quality and its object, this relation being educted.

2. Temporal Relations : Temporal relations, too, are real. The moment the clock strikes the hour of ten the clerk looks at the clock and is reminded of the office work. Here, there is temporal relation between ten o'clock and the starting of the office work and one can be educted from the other.

3. Spatial Relations : Table and chair are spatially related. The pot and the mug are spatially related and can be educted.

4. Cause and Effect Relations : The knife and wound are related in a cause and effect relation because a specific knife has caused the wound. Thus this is cause and effect relation of the knife and can be educted.

5. *Objectivity* : A beautiful scene is observed in the valley. The scene and the valley are objectively related, in this case.

6. *Constituent-Constituted Relation* : The wall is constructed of bricks. The two are related in constituent-constituted relation.

Besides these real relations, there are some subjective relations which exist in the mental thoughts and not in the external world. The following exemplify these relations :

1. *Similarity* : In this, two objects exhibit similar qualities like the similarity in the qualities of objects of the same class.

2. *Contiguity* : In this case, the relation is the existence of two things together, like night and day.

3. *Relation of Premise and Conclusion* : Where there is smoke there is fire and because there is smoke on the hillside there is fire too. The premise in this sentence is—where there is smoke there is fire; the conclusion is–there is fire on the hillside. The conclusion arrived at is not due to perception but due to thought. The premise shows the relation between fire and smoke and it leads to the conclusion. The two, premise and conclusion, are related in thought.

4. *Conjunctive Relations* : These, too, exemplify the relations in thought. For example, the relation of mother and father is only in thought.

(*b*) *Eduction of Correlates* : The eduction of correlates is facilitated if and when the thing is presented with a clue to the relations. If for example, someone is told that a Negro is black and is then asked about an Englishman he will reply that he is white. The relation between Negro and black is the same as the relation between Briton and white.

Though Spearman's laws do not include all the real and ideal relations, the understanding of the organisation of thinking and its nature is greatly assisted by them. The eduction of relations and correlates is considered essential in every type of scientific thinking. But some psychologists do not consider eduction of relations to be necessary in thinking. Secondly, even if there is eduction of relations, the necessity arises after the understanding of the unity of the situation.

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Q. 104. **What is concept ? Give some experiments on concept formation.** (*Agra 1956*)

How is concept formed ? Discuss the role of conception in thinking. (*Lucknow 1958; Banaras 1965: Poona 1965*)

Write a short note on Concept formation. (*Agra 1960*)

What are concepts ? Explain through instances, the process of concept formation. (*Punjab 1963*)

What is a concept ?

Ans. Concepts are the abstract forms of past experiences. They are general thoughts. The development of concepts in the human mind is gradual. The formation of concepts starts with the inception of the activity of thinking in the child because thinking is not possible without concepts. As the child comes into contact with new objects, new concepts take form in his mind and develop. At the outset of this origin and development of concepts, the child adds the concepts of natural things which he has not perceived, to the concepts of living creatures. He thinks about the stars and the moon in the same manner in which he thinks about human beings.

Stages in the Development of Concepts

Thus, the element active in the development of concepts from the age of three to twelve is Animism. And it is not the only active element, being assisted, in its work of developing concepts by Anthropomorphism though the development of concepts of directly perceived objects takes place according to Realism and Mechanism. Toys, plants etc. are at the start, considered living but with the passage of time these concepts too, become mechanised. Originally, the concepts in the mind of the child take the form of the impressions of objects and creatures which he receives, but later on these egocentric concepts are replaced by mechanistic concepts, these latter concepts help the individual to react to the environmental objects. They also help him to behave in society.

Many mental activities take part in the formation of concepts, some of the important ones being :

Assistant Activities in Concept Formation

1. Perception : The formation of concepts or conception, starts with perception. The concept of human beings cannot be conceived if human being are not perceived or if only one human being is observed. The observation of many human beings is essential to the concept formation. Thus comprehensive perception is the first step towards the formation of concepts.

2. *Analysis* : Analysis of the qualities of the concepts is the second step towards concept formation. It is not possible to identify a man as a human being and as distinct from other living creatures unless his qualities are analysed. Thus the analysis of human beings is essential to the concept of human beings.

3. *Comparison* : It is the third step towards concept formation. In the pervious example, comparison of the analysed qualities of various persons is also necessary. This comparison supplies us with the knowledge of the similarity or identity and dissimilarity or diversity of human beings. Analysis of qualities alone is not enough to form concepts. The comparison of these qualities is also essential.

4. *Synthesis* : The next step, after analysis, is the synthesis of similar qualities for concept formation. This synthesis of similar qualities is arrived at with the help of abstraction, rather than the addition of qualities. Dissimilar qualities are disregarded in synthesis. Discrimination is needed for the separation of similar and dissimilar qualities; after which the generalisation of the similar ones is effected though this would leave the process of synthesis incomplete unless assimilation were also effected. Some psychologists separate these activities from synthesis.

5. *Naming* : Naming is the final step in concept formation and as every concept has a name, naming of every concept is essential. Consequently, after synthesis each concept gets a name. For example, the name 'human will' is given to it after the peculiarities of human beings have been synthesised and then the concept of human will is ready.

Activities of conception take place automatically.

New concepts originate in the mind with the increase and extension of knowledge, but the individual does not make any conscious effort towards their formation which goes on automatically. If someone asks us for our idea of a human being, the answer may not suggest itself all of a sudden. All we would possibly say is that a human being is one who has humanity. The definition of humanity would be even more difficult. But, we make frequent use of the word 'human' in our daily lives and find no difficulty in it. In reality, the above steps in the development of concepts have been discovered by analysis.

Q. 105. **Describe favourable and unfavourable elements in thinking.**

Ans. Thinking which can stand as proof, is faultless and logical thinking. It needs the introduction of correct methods of thinking besides the elimination of faulty methods. Many conditions favour conclusive thinking. The major favourable conditions are as follows :

1. Interest and Attention

Both interest and attention favour thinking. Conclusive or authoritative thinking is extremely difficult if not impossible when the subject is such as does not interest us. Attention, too, is difficult in the absence of any interest. On the contrary, both attention and thinking are natural in a subject which does interest us. If for example, we find arithmetical problems interesting, we enjoy thinking about them and we find no difficulty either in attending to them or doing some deep thinking.

2. Strong Motivation

Strong motivation is needed in valid thinking, the latter being impossible in the absence of motivation. Organised and controlled thinking needs strong motivation. Thinking involves the solution of problems. The effort of the mind in thinking corresponds to the strength of motivation for the solutions of problems. Motivation maintains enthusiasm and postpones fatigue. Necessary mobilisation of energy for thinking is made easier by motivation, in keeping with the saying that where there is a will, there is a way. The extent of desire conditions the amount of thinking in the search for the solution and an individual will not rest content until some solution is found.

3. Alertness and Flexibility

Alertness and flexibility also favour valid thinking, because they serve to keep external faults from contaminating thinking. Alertness checks mistakes and fallacies from creeping into thinking. Flexibility keeps thinking free from conservatism and blind belief. An alert person keeps new methods, ways and views and makes use of them in thinking whenever necessary. In this way he immediately understands the meanings of assisting indications, signs and formulae in thinking and makes use of them. Thinking aims at the solution of problems, and it is necessary, therefore, that there should be no mistakes and no omission of details, the latter requiring alertness. If one solution or possibility in thinking does not serve the purpose it has to be discarded and another one should be taken in its place. This needs flexibility. Thus both alertness and flexibility serve useful purposes in thinking and, at the same time, make themselves essential.

4. Time Limit should not be Rigid

When a solution to some problem is being sought, the time limit provided should not be too rigid because if it is so, then normal thinking is hampered and our mental faculties become invalid. Very inflexible and short time limit cannot admit of valid thinking. Time limit for any interesting problem is superfluous because as it is, every person exerts himself to the maximum. But if the subject is uninteresting, a time limit which is not rigid may be imposed upon.

5. Wide Range of Wisdom

The wide range of wisdom is also a favourable factor in thinking. Thinking needs insight, which is constituted of hindsight and foresight. A proper dovelopment of the faculties of the mind is essential for these activities If a solution is to be evolved it is essential to keep an eye on the various aspects of the problem and their mutual relationships and this, too, needs a developed and mature range of wisdom.

6. Incubation

Another factor which favours thinking is incubation. If the solution of some problem proves elusive despite strenuous and persistent effort, it is advisable to lay aside the problem and to involve oneself in some other activity. While one is engaged in this other work, the mind ponders over the earlier problem and just as eggs are hatched by incubation, a solution is evolved through pondering in the manner. Nothing definite has come to knowledge about the process of incubation, but it is common experience that if the problem is left in this way, the solution often comes suddenly or at least, its solution is facilitated when it is taken up again. But incubation proves advantageous only when the problem is set aside after it has been fully thought over, with all energy. Incubation does not imply running away from the problem or from collecting adequate material for the problem, because in that case incubation is useless.

Besides the favourable conditions detailed above, it would be helpful if some other factors which help thinking are kept in mind. Thinking should be free from bias, belief and emotion. Suggestions should be attended to only when the whole problem is in view, because appropriate suggestions will assist thinking but wrong suggestions will be a hindrance. The various stages of the conclusion should be clearly understood because if this is not done the solution will not be understood in its complexity. Thus after the solution evolved every logical step should be gone over in order to eliminate any possibility of fallacy.

Elements which Obstruct thinking

Thinking is a mental process which needs alertness, flexibility and motivation besides a wide range of wisdom. There should be voluntary or independent reasoning in this process. If these factors are absent or if the opposite conditions are present, thinking will be adversly effected or hindered. The following are the prominent factors which hinder thinking.

1. Emotion

Emotion hinders thinking because strong emotion disturbs the mental equilibrium and thereby obstructs thinking. Even if thinking is pursued in an emotional state, if will be extremely one sided and biased. It is no uncommon experience that people cannot think when they are excited by emotions like anger, sex, fear, hatred, love etc. If the emotion is very faint, the speed of thinking will be augmented instead of being hindred. But, for correct thinking it is better to have control over the emotions.

2. Suggestion

Suggestion also obstructs thinking, because it makes it one-sided. Thinking moves along the path suggested. If, for example, someone is told that he will not live for any length of time, his thinking will be very badly effected, making him a pessimist. But it is not essential that suggestions be invariably harmful to thinking because healthy suggestions assist thinking. Self control strengthens self-confidence and assists in thinking out the solutions of problems, the absence of suggestions is however, considered desirable in pure thinking.

Superstition is just as harmful as prejudice. It contradicts reasoning, superstition is belief in something without any thinking or reasoning. Superstition is unreasoned belief. If, for example, we superstitiously believe some theory, opinion or person, we will always think in favour of him and never see his faults. The people who believe superstitiously in a certain religion believe mutually contradictory things but never mentally reason them out. Due to superstition people attribute any causes to anything. If success in some work is not achieved some Hindus attribute it to some cat's crossing their path. Similarly, various difficulties and troubles are supported to be the result of different ill omens but no injury is undertaken to discover the real cause.

3. Prejudice

Prejudice, like the two aforesaid factors, has a detrimental effect on thinking, the only point of distinction being the extent of damage, which is more in this case than in the two cases discussed earlier. The word 'prejudice' suggests the meaning namely some preconcieved idea. If we are going to start thinking on some problem with an inclination in a particular direction all our thinking will be coloured by our bias and will not be impartial. If we have atready accepted some particular person as our benefactor, any harm that he may inflict upon us will be attributed to some other person without casting any doubt on this person. The same applies to prejudice which we may have about some occupations because even if they are suitable we don't spare a thought for them when we are confronted with the choice of one of those professions because we shall ignore their advantages and remember disadvantages. It is obvious from these examples that when prejudiced, thinking becomes partial and incorrect. Pure thinking requires the elimination of all prejudices and thinking.

Besides the hindering factors detailed above, there may be many other allied factors, such as ignorance about the laws of logical thinking and defects in personality. If a person is to think correctly and conclusively he must have some other qualities of the mind besides the absence of these hindering elements.

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Q. 106. **Write a short note on**—*Autistic Thinking.*

(*Punjab 1962, 1959; Agra 1965*)

Ans. One finds so many of the modern boys and young girls living in an extraordinary world away from the real world due to the effect of films and novels. Their thoughts and ways of thinking differ from every other person and they do not care for any measure, convention or customs in their thinking. As for social customs, they are practically full of revolt against them. This way of thinking is an excellent example of Autistic thinking.

As the previous example indicates autistic thinker does not worry too much about criticism or measures. Autistic thinking means thinking which is appropriate itself, not carring for society or reality. This type of thinking is found in abnormal people, introspective people and demented persons. People deeply addicted to daydreams, too, are subject to autistic thinking.

Autistic thinking is an obstacle in the way of the person's adaptation to his environment, and if carried to great lengths, makes a person abnormal. In other words, its excessive presence is a sign of the abnormality of the person.

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Q. 107. **Write a short note on**—*Creative Thinking.*

(*Poona 1959*; *Rajasthan 1964*)

Ans. The name creative thinking indicates that it implies some short of creation. An example is scientific thinking in which a theory is evolved on the basis of certain acts. Creative thinking has, from the psychological point of view, four stages—(i) Collection of facts or Pre aration, (2) Incubation, (3) Illuminatio , (4) Verification.

1. Preparation—In the first step all the facts relating to the problem are collected and all the unnecessary and superfluous facts are eliminated. For example, an author, when writing a book, collects all the material connected with his book.

2. Incubation—After the facts have been collected they are incubated, which means that the unconscious mind contemplates over them. The facts so collected and pondered upon lead to a distinct pattern of thinking. Books are not a mere collection of facts. Books which are considered authority on some subject include quite a lot of thinking and meditation. Scientists extract new things by intense meditation upon facts.

3. Illumination—Incubation gives rise to introspection and the mind becomes prompt. The promptness is sudden and it elates the person. All original thinkers and authors feel that they receive inspiration from somewhere and their thoughts come from some source. This is the condition of illumination.

4. *Verification*—Illumination is the last stage in artistic creative imagination but scientific thinking needs verification too. Verification tests the validity of illuminated thoughts

It has been made clear previously that creative thinking in the artistic and scientific fields is not identical. Creative thinking is the greatest speciality of human beings. All science and knowledge is based on creative thinking.

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15

ATTENTION

Q. 107. What is attention ? Discuss the conditions and effects of attention. *(Gujrat 1954, 53; Bombay 1964, 1959, 58, 53; Karnatak 1965)*

"Attention involves both sensory and motor aspects." Explain what are the conditions of attention ? *(Bombay 1958)*

Explain with illustrations the determinants of attention. *(Poona 1960; Ravishankar 1965; Punjab 1963)*

Explain fully the nature of attention. What are the conditions of attention ? *(Gujrat 1960; Karnatak 1950; Punjab 1964)*

Explain the nature and conditions of attention. *(Calcutta 1955, 1957; Osmania 1965; Vikram 1963; Bombay 1958; Banaras 1965; Raj. 1954)*

Explain fully the nature, conditions and uses of attention. *(Karnatak 1952)*

State and illustrate the factors which attract attention. Is it possible to attend more than one thing at a time ? *(Baroda 1964, 1963; Gujrat 1964)*

Ans. Attention is a selective process Man lives in an environment. The stimuli from the environment are always affecting him. But these stimuli do not affect him equally. It is a common place observation that some stimuli affect us more than others. This shows that man selects out of environmental stimuli. This tendency of selection shows that there is a motivational process in him which is known as attention. This attention is affected by interest, attitudes and set. It is a selective process which includes motiva tion, set and selection. The cat will not attend to the mouse, one can see a definite set in it. This set is both physical as well mental. To take an example from human beings, if a student is not motivated, he will not attend to the class lecture. Again while a professor is delivering a lecture in the class, there are several other sounds being made in other rooms and the sorroundings. The student who hears the lecture selects professor's voice out of the noise in the surroundings. While a student is attentively hearing the lecture, one can very well note his physical set which is also symbolic of his mental set. Receptor adjustment, bodily adjustment, postural adjustment, muscle attention and central nervous adjustments are typical of bodily attitudes in attention. Thus, in brief, attention can be defined as a process which compels the individual to select some particular stimulus according to his interest and attitude out of the multiplicity of stimuli present in the environment.

Conditions of Attention

As a selective act of the mind, attention depends upon several conditions. These conditions may be of two types—External or Objective and Internal or Subjective. External or objective conditions are related with the environment. In the environment or surrounding of the individual there are several stimuli, but he does not attend to all of them at the same time, because some stimuli are stronger than others. The factors making these stimuli stronger than others, are known as external determinants of attention. Besides the external conditions the mental conditions, culture and heredity also influence attention. Due to these internal conditions some objects attract our attention more than others. These internal factors are internal determinants of attention. The methods of achieving attention are based upon these external and internal determinants of attention.

External Determinants of Attention

The following are the most important external determinants of attention—

1. Nature of Stimulus—Nature of stimulus means its type, i. e., whether it is visual, gustatory, auditory olfactory or factual stimulus. It has been found by experiments that in comparison with other sensations, form, colour and sound attract more attention. Among the pictures, the pictures of human being attract more attention than those of animals or objects. Among the pictures of human beings those of beautiful women attract more attention. Besides these, the coloured pictures attract more attention than colourless ones. All these factors are important in advertisement. In the auditory stimulus, the melodious voice attracts more attention than other voices.

2. *Intensity of the Stimulus*—The intensity of the stimulus is a helpful condition in attention. In comparison with the weak stimuli the intense stimulus, attracts more attention of the organism. High sound, excessive pressure and acute pain attract our attention. In the market there is always some buzzing sound and yet the pedestrians hear the horn of the motor car, since the sound of the horn is louder than other sounds. But it is not always necessary that one should attend to the intensity of stimulus. Sometimes while walking on the road, calling of our name attracts so much attention that we fail to hear even the loud sound of the motor horn. As a matter of fact the attraction of the attention does not depend on any single factor, but on several factors inter-connected with one another. Hence it can be said that other things being the same, the more intense stimulus will attract more attention.

3. *Size of the Stimulus*--In the visual stimuli the size of the stimulus is also a determinant of attention. As a general rule the bigger size attracts more attention, but a small advertisement of a very wide background also attracts attention. Thus the attraction of an object does not depend upon its size alone, but also on its background. To illustrate, a big black spot on black face will not attract so much attention as a very small black spot on a white face.

4. *Location of the stimulus*—The location of the stimulus also affects attention. In the visual stimuli, the most effective location is just in-front of the eyes. The role of different pages in the news papers or the magazine and the different places on the same page, is important in advertisement. It has been found by experiments that advertisements given on the front page or on the upper half of any page attract more attention.

5. *Contrast of the stimulus*—The contrast of the stimulus is also an important determinant of attention e.g., the presence of a woman among men and that of a man among women definitely attracts more attention.

6. *Change of the stimulus*—Attention cannot be concentrated for a long time on some particular object. Hence the change of the stimulus affects attention. Attention is sustained by change of the stimulus. The advertisers change their advertisements from time to time lest they may cease to be attractive.

7. Isolation of the Stimulus : A man sitting alone in some corner of the park, hotel or club attracts more attention than others. A student sitting alone at the far corner of the class, is seen first. Thus isolation is an important external determinant of attention. This fact is based upon the reason that the isolated individual is not mixed with other individuals and hence seen separately in his own background. By experiments in advertisement it has been found that only the fact of isolation attracts 30% more attention. In the British Journal of Educational Psychology of August 1951, D. B. Berlyne points out the following principles based upon latest experiments :

(a) In comparison with the un-changed stimulus the stimulus changed in the near past has more possibility of attracting attention.

(b) The effect of the change goes on diminishing with the passage of time.

(c) Whenever stimuli are changed together and in which one is left un-changed, the effect of change is not noticeable.

(d) If change goes on in the changed stimuli, the process of attention is rather permanent and strong.

The modes of change also influence the process of attention. If there is a change absolutely opposite to the present stimulus, it will definitely attract more attention. While studying one does not hear the sound of the clock or that of electric fan but if either of these suddenly stops, one cannot fail to attend to it. Man becomes used to regular changes and does not pay much attention to them. But if some irregular change or any sudden change occures, it at once draws attention.

8. Duration of the stimulus : As a general rule, the stimulus having more duration, attracs more attention. Thus duration of the stimulus is an important determinant of the attention. But sometimes the smallest flashing of a movement attracts more attention than the bigger stimuli e. g., a sudden flash of light for several seconds will attract more attention in a dark night than a continually burning lamp.

9. Repetition of the stimulus : Along with duration, repetition of the stimulus is also an important determinant of attention. It is a common place observation that when the teacher has to attract the attention of students towards a particular phenomenon, he

he repeats it several times. But sometimes, man ceases to attend a phenomenon simply because it is repeated many times e.g., if a man says some thing about him, we take interest in it once or twice, but if we find that he always repeats the same thing, we cease to pay attention to it.

10. Movement in the stimulus : In comparison with the static, the moving stimuli attract more attention. The position of stimulus changes due to movements. An object lying in some corner of the room will not attract our attention, but even if there is some illusion of movement in it we cannot help attending to it. The influence of movement in stimulus is widely used by the shopkeepers and businessmen, who advertise through moving electric lights.

The conditions of attention as described so far are the external determinants of attention. They can also be called external laws of attention. The presence of these conditions in the environment is helpful for attention. Besides these external conditions, some internal conditions are also helpful in drawing attention. These conditions are related motives. As a matter of fact the influence of conditions depends on these internal conditions to a very great extent. The hungry man will attend to the form and stimuli of the food. A man with a full belly will not attend to food, however nice it might appear. In the advertisement those demonstrating the naked organs of the woman have the maximum power of attraction of attention. Those interested in cinema look to the advertisements of cinema at first sight. It is difficult to describe all the internal conditions helpful in attention. Hence only the most important will be enumerated here :

1. Interest : Innate and acquired interests draw the individual's attention to a particular object. Doctors, engineers, professors, all attend to the objects of their own interest. Even among the professors an object attracting the attention of a professor of geology need not attract the attention of a professor of philosophy as well. Thus the innumerable differences, in interests create innumerable determinants of attention in different men. The stimuli influencing innate tendencies attracts more attention than those influencing acquired interest.

2. Basic Drives : The basic drives or instincts of the individual are also important in drawing his attention. The animal attends to a particular stimulus when driven by the basic drives of hunger, thirst, sex etc., e. g., a normal man motivated by sex will naturally attend to individuals of opposite sex. We all know by experience that when hungry we may attend to even a distasteful object, but while our belly is full, we may not attend to even the most tasteful food. Among the instincts, the fear has got a definite influence upon attention. All men who fear snake will attend to all things resembling the snake. Like fear, curiosity also influences attention. We attend to even the smallest details of the object about which we have any curiosity.

Innate need also is very important in attention. The influence of sexual need in attention is very much exploited in the advertisments. Normally the sexual need in human beings can be easily evoked. Hunger, thirst etc., are felt occasionally and the means to satisfy them are also readily available, but neither the sexual need is ever fully satisfied nor are the means of satisfying it available to all persons all the time. Hence most of the advertisements draw attention by stimulating the sexual need in human beings.

3. Mental Set—Mental set is one of the most important internal determinants of attention. Mental set means the tendency or attitude of the mind. A man will attend to those objects towards which his mind is set. In the days of examinations, the mental set of students is generally towards the examination and hence even the smallest thing concerning the examination will attract their attention.

4. Aim—Aim also influences attention. Every man has some immediate and some ultimate aims *e. g*,. the immediate aim of the student is to pass the examination while the ultimate aim may be to get a job to earn living or any thing else. The man whose aim is not to pass the examination will not be concerned with text books or notes etc., but one who has the aim to pass the examination will at once attend to them.

5. *Meaning*—In comparison with meaningless things, meaningful things and talks attract more attention. A man will not attend to a thing which has no meaning for him. Men do not like to hear meaningless talk. If some persons are talking in Tamil, the Punjabi will not like to hear it since for him it has no meaning.

6. *Habit*—Habit is also an important determinant of attention. If a man is habituated to rising early and winding his clock

early in the morning, he must attend to the clock as soon as he gets up. It has been rightly pointed out that man learns as to which object he should attend to and to which he should not, and thus develops habits of attending and not attending to things. Thus habit has two aspects in relation to attention. On the one side man develops a habit of attending to necessary desirable things and on the other side he develops the habit of not attending to unnecessary and undesirable things. Both these kinds of habits help man in his daily routine.

7. *Disposition and Temperament*—Both disposition and temperament are important internal determinants of attention *e. g*., a man having a religious disposition and spiritual temperament will attend to religious matters, while another person having a sexual disposition and criminal temperament will attend to matters concerning sex or crimes etc. William James has rightly pointed out that it is our tendency to take interest in particular things, a result of our innate disposition and mental development, that determines which among the crowd of sensations, should attract our attention.

8 *Past Experience*—Past experience also affects attention. If we know it by our past experience that a particular person is sincere towards us, we shall pay attention to whatever he advises us. If we know by experience that he is not sincere to us, we shall not attend even to his most serious advices.

9. *Emotion*—Emotion is also an important determinant of attention. It is a matter of every day experience that we attend even to the smallest fault of person whom we hate while we do not attend even to the greatest blunder of a person whom we love. A mother seldom finds faults with her child. The lovers find the whole world singing and dancing and immersed in romance.

10. *Social Motives*—Social motives are very important determinants of attention. In advertisements the human figures attract more attention then figures of animals and things. The reason is that man is guided by his social motives. The news about altruism, bravery and saving another's life by putting one self in danger attracts our attention because we praise these qualities. Men attend to things concerning their duties because of social motives.

Besides the conditions described above, many other factors influence attention. Heredity, education and training have a wide influence on attention. The family, school, club, class and society of which an individual is a member, do have some influence on his attention. The physical condition, desire, purpose of the person concerned also affect his attention. Thus all the factors affecting the personality of a man affect his attention as well. As a matter of fact it is difficult to describe all direct and indirect determinants of attention. The description given here, however, includes the most important of such factors.

* * *

Q. 108. **Describe the nature of attention and also its principal varieties.** (*Bombay 1960, 1958; Karnatak 1955; Muzaffarpur 1964*)

Mention the important types of attention. Explain the various factors which determine attention. (*Bombay 1955*)

Give a brief accout of different types of attention, bringing out the main characteristics of the process. (*Agra 1958, 1955*)

What is meant by voluntary or involuntary attention ? Is their distinction quite sharp ? Illustrate your answer. (*Agra 1961*)

Distinguish between voluntary and involuntary attention. Can attention be divided between two distinct tasks at the same moment ? (*Bombay 1958; Nagpur 1955*)

Kinds of Attention

Voluntary Attention

Ans. Voluntary attention (its name is indicative of its nature) is that attention which is willingly directed to an object. If, for example, a student attends to his studies of his own account and as a result of any external pressure, his attention will be called voluntary attention. An analysis reveals elements of desire and interest, aim and social adjustment, in this voluntary attention. In the foregoing example, the student directs his attention because of particular aim like the passing of an examination, acquiring knowledge or one of a number of other goals. He takes an interest in studying. By passing the examination or acquiring knowledge he may be able to support a family or gain social standing and status. Like other activities, attention is just another form of adjustment. The difference between the voluntary and involuntary attention is that while the former is secured by the motivating elements in the individual, the motivating elements exist without in the latter case. Thus, when attention is suddenly attracted by a song, the attention is called involuntary.

Involuntary Attention

As has been explained above, involuntary attention is not only directed by the individual's desire or motivation, it may even be against it. It hinders the process of goal seeking sometimes, not always. If, for example, your attention is attracted by a song while you are studying, your studies will be hindered. Social adjustment is similarly obstructed by involuntary attention. The proper adjustment of a student can be the outcome only of an undisturbed attention to his studies. On account of the fact that one can pay attention to only one thing at a time, the student will not be able to attend to his studies if his attention continually wanders in other directions. Obviously, a person forgets his goal owing to involuntary attention and cannot effect his adjustment.

Habitual Attention

Besides the two types of attention mentioned above, there is a third type, the habitual or non-voluntary attention The difference between non-voluntary and involuntary attention is that the former type is the result of some habit or practice and the motivation is in the individual but the reason for attention in the latter type is in the object. Habitual attention is different from voluntary attention because habitual attention has no need for a desire as the latter does. But continued application of voluntary attention converts it to habitual attention. For example, a student pays voluntary attention to study in the begining but it is gradually transformed into habitual attention towards reading or writing. Thus the position of habitual attention is in between voluntary and involuntary types of attention.

Actually the above distinctions made in attention are not very clear. The difference between voluntary and involuntary attention is often only just discernible. No attention can be said to belong to any one of the three types completely. A scholar has to exercise his desire inspite of his involuntary attention in reading. There is an unconscious desire to pay attention to an object which involuntarily draws your attention. In this way the difference in the types of attention is small though it is of great importance from the psychological view-point.

The nature of attention permits of its concentration in only one direction at one time. Direction of attention to two or more objects means either their acceptance as one or such an oscillation of attention between all of them as gives the impression of simultaneous attention. But experiments have proved, beyond doubt, that a person can pay attention to only one object at a time.

Q. 109. **Explain fully what is distraction and how you can overcome it.** (*Alld. 1959*)

Write a short note on—Distraction.

(*Poona 1960; Karnatak 1965, 1964*)

Distraction

Ans. Distraction means the dividing of attention or some interference in attention. For example, when one is studying, the sound of a song or noise breaks in upon attention. The object which causes the distraction is called the distractor. In fact, broken attention is not the absence of attention because the distractor is associated with the activity, often, though not always, and it no longer interferes with the activity.

Distraction does not always interfere

Thus, the notion that distraction invariably hinders work is misleading, it being seen, for example, that the labourer produces more when there is music. Some labourers, men and women, sing at work in view o this fact. Not a few people do their reading and writing while the radio is playing. Some people work better in a noisy environment than in a peaceful one. Experiments conducted by Morgan indicated that at first distraction caused a drop in the speed of typewriting but it later became constant. Pursuing the work in the disturbed condition increased the speed and it again dropped when the distraction was removed. But distraction in some experiments by Weber caused harm. Though it cannot be definitely said that distraction increases the speed of the work, it is possible to say with some degree of confidence that a decrease in speed due to distraction is not inevitable. Actually the effect of a distraction on some work depends in no small measure upon the capacity, interest, practice, skill and mental set of the worker. If the distraction is suitable the speed will be increased but if it is unsuitable the speed will drop.

Roughly, distraction can be divided into two forms :

Forms of Distraction

1. Continous Distraction : As the name suggests, it is the continuous distraction of attention. Some examples of it are the sound of radio or gramphone played continuously, the noise of the market place etc. Experiments have led to the conclusion that adjustment to continuous distraction takes place quickly.

2. Discontinuous Distraction : This type is irregular, being interspersed with intervals e.g., the hearing of somebody's voice every now and then. It interferes with work because of an impossibility of adjustment.

Some major means of removing distraction are :

Means of removing Distraction

1. Being active in work : Work in distraction calls for more energy, so that one way of adjusting to it, or removing it, is to become more active in work.

2. Disregard of Distraction : The presence of a distracting factor while a man works is no extra-ordinary condition, and so, the best way to remove this element is to disregard it. The distraction is effective only when attention is directed to it, so that in attention, even to the most serious distraction, will keep the activity from being interfered with in any way.

3. Making the distraction a part of the work : Distraction is an obstacle only when it is distinct from the activity or against it since attention can be focussed just on one object at one time. Therefore another method of making a distraction ineffective is to make it a part of the work. Some people work better when listening to a song because they make it a part of their work. But this approach is very difficult because in this the interests, nature and capacities of the person are involved. It is very difficult to make an uninteresting and contradictory distraction a part of the work.

◆

Q. 110. **What is the relation between attention and perception ? Explain fluctuation of attention.** *(Agra 1965)*

Ans. Attention is the selective activity of the mind. Perception is the understanding of the meanings of sensations. The

Relation between Attention and Perception

perception of any one particular object in the midst of many depends on attention. Often you do not see it. You frequently pick out one voice or sound from among many because you attend to it before you attend to others. On the other hand, perception is not possible without attention. Attention is a selective activity but selection will take place only if many objects or activities are present in the conscious area. Therefore, attention is possible only after perception. Perception is inevitable after attention, but attention does not necessarily follow perception. The two are, obviously, intimately related.

Fluctuation of Attention

Attention is a mobile or dynamic activity, and it is difficult to attend to one particular object for any great length of time. When attention moves from one object, to another, it is called the shifting of attention. But even when the attention persists with one object, it grows more or less. This is called the Fluctuation of Attention.

Causes of Fluctuation of Attention

The causes of fluctuation of attention were, in previous times, attributed to the temporary slackness in the mental activities and sense organs Some psychologists found the fluctuation even when the muscles had been numbed. The fluctuation was then believed to be due the changes in adjustment or adaptation, though nothing can be said definitely about the matter still the importance of the senses, mind, psychological state and environmental factors in fluctuation of attention is undeniable.

◆

Q. 111. **Can attention be indentified with interest ?**

(*Bombay 1960*)

Fully consider the nature and conditions of attention. How are attention and interest related ?

(*Bombay 1960*; *Gujrat 1957*; *Karnatak 1953, 51*)

How does interest influence attention ? (*Baroda 1959*)

Explain the relation between attention and interest.

(*Bihar 1959*)

Ans. Attention is a selective act of the mind. To attend to a thing is to concentrate on it by removing attention from other thing. The mind can attend to one thing at a time. Hence mind has to select. In the selection it is natural that the mind should select such objects in which it is interested. This is amply demonstrated in our daily life. The boy whose interest is in playing will attend to play while one who is interested in studying will attend to study. Hence one cannot attend to the studies by forcibly sitting for it. One can attend to the studies only when one is interested in it. Hence the successful teacher tries to make the students interested in their studies.

Interest is affective disposition which evokes attention and maintains it. Interest is not activity. It is a permanent tendency or a mental structure which supplies sufficient motivating power to motor activity. Interest is sometimes innate and sometimes acquired. In the fulfilment of instinctive needs, the animal naturally shows interest. Thus the individuals of different sexes are naturally interested in each other. The herbivorous animals are interested in grass while the carnivorous are interested in meat. Lion is interested in goat while goat is interested in green leaves. Besides the instinctive interest there are some acquired interests as well *e. g.*, the scientist is interested in the instruments of his laboratory while they are of no interest to the ordinary layman. Thus individuals develop different interests according to their diposition, attention, economic, social and political status etc. Attitudes towards those things are mostly acquired. The acquired interest depends upon experience. The interest is directly related with the emotions and desires. The thing or the individual in which we are interested finds a place in our inner life and we develop it through our emotions towards it. It is not necessary that the interest should be permanent. Things which do not fulfil any permanent need evoke only temporary interest. As the need is fulfilled, the individual ceases to take interest in such objects *e. g.*, if a man has to cross a river, he will be very much interested in the boat, but after he crosses the river his interest in the boat will also come to an end. Permanent interests are related with emotions and sentiments. They are permanent mental conditions. According to Drever interest is a disposition in its dynamic aspect. Interest is not an affective experience, but affective tendency. It is not mental process, but mental structure.

According to Mcdougall "Interest is latent attention, attention is interest in action." As it has already been pointed out, interest is mental structure and it is expressed through attention. When the individual is not attending to a particular object, his interest in it is in a dormant form e.g., suppose a man is interested in seeing a tennis match. Whenever there is a tennis match, he always goes to see it. He reads news about tennis very attentively. But neither a tennis match is played daily nor news about it is heard everyday. Hence when this particular man is busy in the activities other than seeing the tennis match or hearing news about it, his interest in tennis remains latent. When we attend to an object, our interest in that object is manifested. If we are interested in a certain thing we must attend to it. A man interested in national progress will attend to every national issue. A man interested in woman will normally pay attetion to them.

Interest is a mental cause of attention. It is not necessary that all men should be acquainted with their interests. Sometimes when we attend to a thing, we wonder how we came to be interested in it. Sometimes we do not know as to in which things we are interested. Sometimes we are not prepared to accept that we are interested in a certain particular thing.

But the innate relation between interest and attention should not mean that one cannot attend to an object in which he is not interested or if one attends to a thing it necessarily means his interest in it. Very few persons are interested in studies. Mostly the students study with the purpose of getting a degree or finding a job by passing through the examination. But this need not cause any deficiency in their attention. Even when one is not interested in his studies he can attend to it. There is no correlation between the degrees of interest and attention. As a matter o fact neither interest and attention are identical nor is there a positive correlation between them. Interest is a cause of attention, but attention is not a result of interest. By saying that there is innate relation between the interest and attention, it is meant that interest is a very helpful factor in attention.

16

LEARNING AND HABIT

Q. 112. **What is learning ? Discuss the relation of motivation to learning.** (*Banaras 1965*)

Ans. Most of the activities of life, like eating, drinking, wearing clothes, walking, talking and many other such activities have to be acquired by the child. This activity of learning is sometimes conscious and sometimes unconscious, sometimes fast and sometimes slow but there is hardly an occasion in a person's life when it stops completely.

Changes in Behaviour due to learning

To take an example, you are proceeding on a road and a dog starts following you. You give the dog something to eat which he eats. Now whenever you happen to traverse the road, the dog follows you. To take another example, Radha, being indisposed, is taken to the doctor. The doctor prepares the syringe while the little girl looks on with interest or indifferently, depending on her nature. The doctor injects the medicine and Radha finds this a painful way of administering it. When Mohan takes Radha to the doctor next day her indifference is no longer there because she starts screaming the moment the doctor lays his hand on the syringe. Why this change in reaction ? She did not react in this manner on first occasion. The answer would be that she had learnt by experience that injections are painful. In this way learning brings or causes changes in her behaviour.

The following are some definitions of learning which should make it clear—

1. **Learning is change in behaviour**—In J. P. Guilford's opinion, "we may define the term very broadly by saying that learning is any change in behaviour, resulting from behaviour." In this definition, a distinction between change in behaviour, due to maturity and change in behaviour done to learning is unavoidable though both these activities occur simultaneously.

Definitions of Learning

2. Learning is an organisation of behaviour—According to Garrett, learning is that activity by virtue of which we organise our responses with new habits. Thus the element of organisation in learning is one the importance of which cannot be over emphasized. Guilford too, has written that the meaning of learning is, inevitably, an organisation of behaviour. Thus, in learning to ride a cycle we have to organise the learning of turning the pedal, balancing the handle, etc., in order to be reasonably safe with the vehicle. It is another matter that a person does not learn this organisation at the outset and that he may take much longer time to learn to balance the handle than the time he may take to learn to turn the pedal. But his learning of the art of cycling will be completed only when he accomplishes this organisation.

3. ✓**Learning is the reinforcement of a new thing**—R. S. Woodworth opinion gave the that the learning of a new acting is an addition to the person's store of experiences. Clarifying the statement further, Woodworth says that reinforcement, too, is an indispensable element of the act of learning because this activity forms only successful responses and weeds out the unsuccessful responses. To quote Woodworth : "An activity may be called learning in so far as it develops the individual in any way, good or bad and makes his environment and experiences different from what it would otherwise have been."

4. Murphy's conception—The persons who stress external behaviour consider learning to be a change of behaviour while those who lay emphasis on internal changes are convinced that learning is change in the perspective of the individual. Combining these two views, Murphy wrote, "From this point of view it would be legitimate to regard learning as a modification both of behaviour and of the way of perceiving."

5. Hilgard's view—Many examples may be prevented from everyday life like, memorising a poem, working at the typewriter, manipulating knife and fork etc. The following definition of learning given by Hilgard is an essence of all the foregoing definitions offered by other psychologists, "Learning is the process by which an activity orginates or is changed through reacting to an encountered situation, provided that the characteristics of the change in activity cannot be éxplained on the basis of native response tendencies, maturity or temporary status of the organism."

Despite the fact that this definition is unsatisfactory because of the shortcomings it may serve its purpose for the time being.

Please also see the answer to the Q. No. 120.

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Q. 113. **Write a short note on—Learning and Maturation.**
(*Patna 1962*; *Raj. 1964*; *Banaras 1957*)

Ans. Learning changes behaviour and for the matter of that, so does maturation. Thus sometimes it becomes difficult for any one to say definitely as to which of the subject's activities are the result of learning and which are the consequences of maturation. Automatic activity, random acts, reflexes and instincts and unexpected expression of pain and emotion can be accepted as unlearned actions and the result of maturation, but in most of the activities of human beings it is difficult to decide whether these activities result from maturation or learning. In reality, these activities develop from the complex of learning and maturation. Take the example of learning. It is true, of course that a child is manifestly incapable of learning language until he reaches a certain stage or age in maturation, but it is also equally true that he does not learn the language just because he attains that stage. The language is taught to him.

Example of Co-twins—An experiment on co-twins indicated the extent of the changes in behaviour caused by maturation and the extent to which changes may be affected by learning. The experiment has been extracted from a treatise 'Maturation of Behaviour' by M. B. Mcgraw published in Carmichaels' book *A Manual of Child Psychology*. The purpose of the experiment was to measure the extent of advantageous application of learning to such activities as climbing the stairs. Two twins were chosen for the experiment because due to the similarity in heredity, the speed of maturation is the same and any changes which may occur may be attributed to learning. One of the twin 'S' was not given the opportunily of climbing stairs for 53 weeks while the other twin 'T' was taught to climb the stairs from her forty sixth week. On examination this twin 'T' failed to climb at all at the age of 46 weeks and had to be aided up all the 5 stairs. In the space of four weeks she climbed all the stairs in 26 seconds.

When 'S' was placed on the stairs at the age of 53 weeks, she climbed all the five stairs unaided but it took he some 45 seconds.

Conditions for the law of readiness

1. When a conduction unit is prepared to go into action, its work is quite satisfactory because nothing is done to alter its working.
2. The inactivity of a conduction unit which is ready to behave, may be unsatisfactory and any reaction may arise in connection with that deficiency
3. When a conduction unit is forced to act while it is not prepared to do so its behaviour is of a nature calculated to excite anger.

Signs of the Readiness for learning

It is quite obvious from the above description that the readiness for learning is known by the tendency for learning in the learner. The tendency for learning results in self-contentment on learning. If the learning is obstructed, even in the event of the presence of the tendency to learn, then deep discontentment may result. Thus while on the one hand, the tendency towards learning is an assistance in learning, it may, on the other, be a source of discontentment in case the learning is impeded or completely absent. For an experiment arouse the curiosity of a child in some object and then desist from giving it to him and it will be seen that his discontentment increase which is abated when he is in possession of the object and has understood it. Similarly, teach a caged monkey the method of securing fruit from outside the cage but do not give him the opportunity of experimenting with his skill. He will consequently, be extremely agitated and he will be satisfied and peaceful only when you let him experiment with his method and obtain fruit with effort.

In this way the law of readiness is related to mental preparation. In reality, Thorndike's conduction units do not mean anything physiological, but rather the tendency to an action. Thus readiness means a mental preparation for action. The law of readiness was not one of increase but of preparatory adjustments and it is incorrect to interpret it with physiological development or physiological growth.

In his books, '*Fundamentals of learning*' published in 1932 and '*The Psychology of Wants, Interests and Attitudes*' published in 1935, Thorndike practically separated the law of readiness from the other laws of learning. 'Now, he considered the wants, interests and attitudes to be contributory power in learning, in place of the word readiness. We progress in learning by the motivation furnished by our wants, interests and attitudes. A person cannot do an activity with ease towards which he is unfavourably disposed. Thus, with this modification or correction, they do not mean the same thing. Thorndike described the law of learning in words more appropriate than the one he had previously used.

Law of Exercise

The second law, of any consequence (in this case not in considerable), in human and animal learning is the law of exercise, which is based on the laws of use and disuse. The repeated application of an activity fixes it firmly in the mind while on the other hand, no physiological reference is intended. The relation is weakened through continuous disuse. Whenever there is an appropriate situation, the activity which is firmly entrenched might take place. This law, taking a cue from this universal experience, emphasizes repetition in the activity of learning, Repetitive application of the activity results in the formation of a habit in the muscles and the nerve fibres of the brain so that there is a facility in its execution in case of need.

Criticism

The element of understanding in repetition was not adequately stressed in Thorndike's law of readiness. For example, it is a rule that if repetition, in the memorising of a poem, is complemented by an attempt to understand and mutually relate the different stanzas, the learning may be affected with ease. Not so with Thorndike, who considered the mechanical repetition in learning individually sufficient. This type of mamorising becomes rote learning, a highly undesirable thing, and the forgetting of one line results in the forgetting of the rest while the recollection of the important line is of no use because the order is lost. The scientific method makes a clear understanding of the subject matter and constant renewal quite as important as constant repetition. Thus, Thorndike's mechanical repetition came in for a lot of criticism and he reacted by effecting modifications.

At a later stage, Thorndike emphasised of on controlled practice in excercise, which was comprehensive enough or was made comprehensive enough, to include an association of ideas, clarity of meaning, maximum effort in learning and the use of the cues of learning in the activity, besides repetition, on which he had laid stress previously.

The meaning of the law of effect is the effect of learning. The answer to the question as to the success or failure of learning has

Law of Effect

very significant bearing on the law now under study. Success brings with it satisfaction and along with it a strengthening of the relation of the facts. Failure increases dissatisfaction and the absence of the relation among the facts weakens them. Thus, we may compare success to a reward or failure to a punishment and the desire to repeat success or avoid failure or the inevitable antecedents.

Spread of Effect

In 1932, Thorndike propounded a new theory on the basis of his experiments about the law of effect, and this he entitled 'Spread of effect'. This novel theory postulates that the activity of learning does not confine its effects to itself because correlations and the strength of adjustments are not left uneffected. For example, the son of a businessman is ahead of his class in arithmetic because he has already learnt some accountancy in connection with sales in the shop. Thus the spread of effect, by implication, means the spread of success, reward etc.

Criticism of the Law of Spread of Effect

Two objections have been raised against the law of effect, which was Thorndike's creation. The behaviourists contend that, the two words satisfaction and dissatisfaction, being subjective are incapable of describing animal behaviour. Thorndike used them in an operational form and did not use them as indicators or symptoms of internal experience. The conditions of satisfaction and dissatisfaction are recognised by their effect on the adjustment, which is what the law of effect tells. Thus, Thorndike's law of effect cannot legitimately be called subjective. The second objection raised against this law is that because the effect is existing while its causes have disappeared. It is, therefore, incorrect to credit the effect of the present situation to past effects. The effect is either present or will be known in the future, but this objection, too, is groundless. The effect tells of the possibilities of the reaction taking place in the future. The accuracy of the forecast or prophecy is a matter to be examined at a later stage and it is not correct to say anything about it in advance. The real cause for this objection against Thorndike's law was the emphasis placed on the backward influence felt by the neurons, by Thorndike himself. In simple language the law of effect means that activity is encouraged by reward or success and is impeded by punishment or failure. As Thorndike said, this law of effect is direct and does not need the assistance of thought. In the saying of this, Thorndike indicates the principle of reinforcement which is accepted in the theories of conditioned response.

Correction of the law of effect

In 1935, Thorndike made some modifications in the law of effect, based on experimental findings. He now said that the influence of reward or punishment is not equivalent and neither is it paradoxical. The effect of reward is far more influential than that of punishment. The strengthening of associations due to reward is not paralleled by the demoralisation caused by dissatisfaction. Thus the person who is learning should be as much satisfied as possible in order that he may learn with success. Encourage the child when he does some thing and congratulate him besides rewarding him with the object of desires in order to bring the desirable spirit in his learning.

The importance of the major laws

These major laws enunciated by Thorndike are of great practical importance. Very few of us realise the effect which reward, encouragement, praise etc. have on learning. These theories are of importance not only in the teaching of others but also in personal learning. An interest in the activity to be learned should be created in the learner, be it oneself or some other, because the learning will be greatly expedited. And, the meaningful practice of the learnt activity will help its retention in no small measure.

Subordinate Laws

Other five subordinate laws were also mentioned by Thorndike in relation to the three major ones studied above, though a methodical explanation of true laws was given by Thorndike. His later expositions sometimes contain their description while at other occasions they are lacking in it. He does not consider these sudordinate laws to be of equal importance with the three major ones mentioned above. These five sudordinate laws are—

1. Multiple Response: The first subordinate law is called as varied reaction. A person seeks to solve a novel problem placed in front of him in accordance with his instincts and learned behaviour, because his search is conditioned by these two. There are many multiform and diversified responses in the behaviour which guides a person in attaining success and makes learning possible. The learner reaches the solution by the variation in the response.

If the activities are not multiform, the person would never get the correct solution. The theory of learning by trial and error is founded on multipurpose responses and diversified reactions. If a person adopts a particular method of approach but does not change it in case of failure and gives up his attempts or if nothing new suggests itself, that person will ever learn anything. The person who is learning should constantly change his steps until he achieves complete success.

2. Set or Attitude : This is the second law of learning. Learning is conditioned by the attitude and set of the creature. The response of a person in a specific situation is dependant upon his permanent adjustment in a particular culture. On seeing a figure or statue a Hindu child will bow his head but a Muslim will not pay any respect. Both these responses are affected simultaneously by current tendencies. In an extraordinary situation, the worshipper may even throw the statue. The set or attitude decides not only the response of the person but also the object from which he will derive satisfaction or dissatisfaction. A first class student cries on scoring 50 percent marks, while a third class student feels delighted with the same score. The reaction of a student on scoring a certain number of marks depends upon the set, attitude and the tendency present in him at the time.

3. Prepotency of Elements : The third subordinate law of learning is the prepotency of elements. Every problem has some fundamental prepotent elements. The learner gets greater success if he bases his response on those elements, though this depends on the insight and capability of the learner. This kind of capacity is of great help in thorough learning. The insight, into a mathematical problem, of a student of this particular subject cannot be equalled by that of a student of languages into the same problem because the student of mathematics will grasp its fundamentals with consummate ease.

4. Response by Analogy : This is the fourth law of learning, and is called the law of assimilation. A person will respond in a manner similar to the one in which he has behaved previously if he finds some similarity between the previous situation and the new one. Even if the elements of similarity between the old and new situations are none too numerous, the response will be similar to that in the past.

5. *Associative Shifting* : This is the fifth and last law of learning. The title quite obviously indicates that the position of the response of the learner shifts. This shifting is done in respect of the basic stimulus or some related associative stimulus. To take an example, a dog starts salivating, when he sees food, and approaches the bearer with his tail wagging. The result of constant repetition of this phenomenon is that the dog wags his tail on the mere perception of the man and the shape of the dish. Thus the response originally directed to the food is now aimed at the man and the dish because both these objects are associates of the main stimulus, the food. Thus an associative shifting in the response is observeble.

All the laws, subsidiary and main, presented by Thorndike are important in learning, both for the teacher and the student. They are applied comprehensively in education though all the psychologists are not agreed upon the truth and usefulness usually attributed to them.

The above described laws of learning are not intended to convey the impression that, Thorndike's attention was confined only to the laws. Actually, Thorndike paid even greater attention to the practical aspect of education and made attempt to absolve the difficulties of the teachers and taught alike. Thus, Thorndike attends to the specific aspects of learning and did not rest content with a general description of the activity. He has mentioned many factors which may assist in learning, but which are not implied in and cannot be derived from his laws of learning. For example, he has stressed the following five things which ,assist in the progress of learning :

(i) Interest in the work
(ii) Interest in improvement
(iii) Significance
(iv) Problem Attitude
(v) Attentiveness

To these five, Thorndike added another two which in his opinion, are not indisputable. These are absence of irrelevant emotion and absence of worry. In this way, he encouraged practical experiments and measurements. He himself conducted experiments throughout his life and made continuous progress in his theory. He is fundamentally a behaviourist, not withstanding his acceptance of the effect of introspection on human beings and he frequently used subjective words. He encouraged the psychological revolution in the field of education and emphasized the study of elements according to specific situations.

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Q. 115. **What do you understand by "Learning by Insight"? How does it differ from learning by trial and error?** (*Alld. 1956*)

Explain the nature of Insight as a method of learning. What are the signs of the presence of Insight? In what respect is insight superior to other methods of learning? (*Agra 1954*; *Patna 1962*)

Mention the chief forms of learning. In what respects is insight superior to other methods of learning? (*Bombay 1952*)

Describe the experiments of Kohler on animal learning and explain his theory of learning by insight. (*Karnatak 1965*)

Ans. Insight is an important constituent in the solution of problems, and is found in the higher class of animals and human beings. It is the best method among the methods of learning.

Kohler's experiments

According to the Gestalt psychologists, a person can deduce the solution by insight if he perceives the situation as a whole. A German Gestaltist, Kohler, prepared some simple problems for experiments with dogs, hens monkeys and chimpanzees. In an experiment a hungry animal was released from the house while some food was placed behind the fence adjoining the wall. Both the dog and the hen trotted around in the vicinity of the wall but as soon as they found the way out they made their exit and reached the food. This finding or the change in the meaning of the wall in the previous example is insight. Before the insight the wall was an insuperable obstacle, but after insight it was no longer an obstacle but an object necessitating circumvention. The result of insight is the understanding of new relations, the discovery of new patterns and the formation of new organisations.

The most famous experiments conducted by Kohler, in relation to insight were those that were carried out on chimpanzees. Some plantains were placed outside the cage of a chimp called Sultan, who was then handed two sticks so constructed that they could be fitted together. Sultan tried to pull the bananas with the sticks, an effort which he kept up for an hour, but he got tired of the attempt and gave it up for playing. While playing he brought the two ends together and suddenly he got an idea which resulted in his fitting the smaller stick in the hole of the bigger one. He then used the two together to draw the banana inward. The two sticks disintegrated but he fitted them together again. He then pulled in everything within reach as if he were trying out his idea. The next day he took far less time to fit the two together. It is a peculiarity of insight that once the solution is learnt, it is not forgotten though its memory may becomy hazy with the passage of time.

The above experiments make it quite obvious that learning by insight has peculiarities of its own. They are briefly as follows :

Peculiarities of Insight

1. Insight is sudden.
2. Insight alters perception.
3. Old objects appear in new patterns and organisations by virtue of insight.

4. Insight is related to the intellectual level. The higher classes of life including human beings have more insight than the lower species of animals.

5. Understanding is more useful than dexterity of hands.

6. In Woodworth's opinion, insight is sometimes hindsight and at others it is foresight. To quote him "foresight is seeing the way to the goal before taking it and hind sight is observing that a lead is a good or bad after trying it When the whole situation is clear and above board there is a good chance for foresight. but when important characteristics of the situation have to be discovered by exploration and manipulation, hindsight is the best we can expect."

7. Previous experience is of assistance in insight. though the excess of previous experience does not necessarily increase insight because organised perception too is an essential factor in learning.

8. Age also affects insight as evidenced by the smoother working of insight in older age than in adolescence.

9. If the pieces essential for the solution of the puzzle are present together when perceived, insight comes about earlier.

10. Some psychologists say that learning by insight is associative learning. Insight appears suddenly after the manipulation of thoughts or objects for a small though significant length of time.

11. The insight gained in particular circumstances is of assistance in other circumstances. A verbal formula is generally

extracted by people learning by insight and this formula is capable of facile application to other circumstances.

The above mentioned peculiarities of insight learning apply with equal veracity to human and animal learning. The solitary difference is the fact that a human being by virtue of his superior faculties of experiencing and understanding, judges relation between various objects quickly and sees the patterns cancealed in them with alacrity. He is assisted in this by language. As a matter of fact insight occurs only when the learner perceives the related link hidden in the activity. The learning curve is altered suddenly due to insight. Insight is impossible in an extremely unfamiliar problem, because familiarity is very necessary for insight. A student of literature will have no insight in any scientific problem because he does not know even the a b c of science. When the subject of study becomes a part of life, insight becomes possible. History can be made alive by travelling, Geography by exhibitions and Arithmetic by shop accounts. Familiarity is also important besides the theoretical study.

Insight learning in human beings

One example of human learning by insight will suffice. A student of Arithmetic tries hard to solve a difficult problem of Arithmetic. He tries many methods but fails to secure a solution. He gives up and lays it aside or goes to sleep. After sometime suddenly or when he is awakened the solution suggests itself and he notes it down in his note book. When he is confronted with similar problems in the future, he will have no difficulty in solving them.

The insight method is superior to imitation or conditioned response because both the latter methods take more time. For the superiority of insight over trial and error, please see the next question.

* * *

Q. 116. **Distinguish between 'learning by trial and error' and 'learning by insight.' Illustrate your answer with the help of examples.** (*Vikram 1962*; *Agra 1958*; *Rajasthan 1952*; *Mysore 1962*; *Gujrat 1964*)

Ans. There are the following major points of difference between 'trial and error' and insight :

1. In trial and error, success depends almost exclusively upon effort and exertion while success in insight is mainly a natural gift.

2. The use of trial and error is in no way restricted though insight is confined to those with comparatively higher intellects.

3. Trial and error emphasizes the acquisition of skill or motor skill but not so in insight. In this mental effort is stressed upon.

4. While insight depends upon perception, trial and error depends upon sensory motor coordination.

5. The person keeps an eye on the goal, in trial and error and all activity is goal-directed but in insight it is the unconscious mind or brain which exerts the most while the conscious activities are either very few or aimless.

6. Every new problem has to be tackled from the very beginning if the trial and error method is used. On the other hand, both generalisation and differentiation are present in insight, which adds to the possibilities of transfer of learning and the use of old insight in the solution of novel problems.

These differences are further clarified by the following tabular representation—

Trial and Error Method	**Insight Method**
1. Dependant upon effort and labour.	Dependant on natural gift.
2. Available to all.	Needs a comparatively higher intellectual level.
3. Stress on physiological efficiency.	Stress on the brain.
4. Based on sensory motor coordination.	Based on perception.
5. Goal directed activity.	More work done by subconscious brain.
6. No transfer of training.	Transfer of training.

Insight method is advantageous

The students will be permanently helped by the use of the insight method of learning in place of the trail and error method in their study and other daily activities. They will also be able to conserve their energy. Suppose that a person has to arrange furniture in a room. An average or feeble minded person will determine the position of the table by using the trial and error method and shifting the table from place to place. An intelligent person will take up a position in the room from where the whole room is visible, and imagine all the possible positions of the pieces of furniture in an imagined frame work of the room and then place the respective pieces accordingly. But this does not mean that trial and error method is not meant for the intelligent. By no means is this so. In many novel situations progress is not possible without it. An intelligent person should use both these methods according to the needs of the situation.

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Q. 116. **Point out the different conditions favourable for various types of learning.**

Write short note on—whole versus part-learning.

(*Muzaffarpur 1965; Allahabad 1959*)

Ans. Psychologists have experimented widely on different subjects of learning and have prescribed the different factors favourable to each of them individually. Different conditions are ideal for different subjects of learning, in the presence of which learning is quicker, more efficient and permanent and it is desirable to pay close attention to these conditions.

Generally speaking, learning may be accepted to be of three types :

1. Perceptual and conceptual.
2. Motor.
3. Affective—Conative.

It will be advantageous to describe the ideal conditions for the three types of learning individually.

The cognitive, perceptual and conceptual type of learning is made more effective by the following conditions—

1. Beginning the work with enthusiasm—The absence of enthusiasm is a detrimental factor because while it prevails no preceptual or conceptual learning can be carried into effect. Learning an active process and one which demands effort, the more enthusiastic a start, the more success is likely to attend the learning. Mere perception is inadequate for the understanding of a perceptual subject while personal application gives better results and this is the reason for the importance given to experiments in the study of psychology. Similarly, self study is very useful in a conceptual subject. The slow speed in learning is due, largely not to lack of intelligence but due to the absence of enthusiasm.

2. *Distribution of the time of study*—It is better to learn a subject by introducing intervals in the time of study than to study uninterrupted for any length of time. The study of any mental subject should always be conducted on the interval pattern of time distribution. Spaced learning is better than unspaced learning.

3. *Presence of Assisting Factors*—The presence of assisting factors is of advantage in both perceptual and conceptual types of learning. The assistant factors in conceptual learning are—dictionary, tables and graphs, preparing an outline, writing a precis, taking notes etc. The use of laboratory instruments in perception, for perceptual learning, is desirable.

4. *Whole or Part learning according to the material to be learnt*—The approach to learning whether as a whole or part, depends upon the capacity of the learner and the quantity of the subject to be learnt. The whole method is good for intelligent learners while the part method is used with advantage by the intellectually weaker learners. Suppose we have to memorise a poem. Now, if we read the whole poem at once, the relation between the various lines will become clear and assist in the learning of it. If, on the other hand the poem is difficult and lengthy, it would be better to divide it into parts than to study it as a whole. A student used to the part method of study finds the whole method inflexible and cumbersome. As a matter of fact, as far as the matter of studying books is concerned, it is better if the student first reads the whole book and then studies the chapters individually.

5. *Assistant Habits*—These too are of some importance in learning. To succeed the student should form the habits of consulting the dictionary, making a fixed time table for study, not working when exhausted, using sketches, illustrations and briefs, studying alone in the morning and evening, repeating the lesson, preparing according to plan and with regularity, minimising lip movement and reading silently and concentrating the mind etc.

6. *Other Assisting Conditions*—Besides the conditions mentioned above the following conditions also assist in mental study—absence of fatigue and boredom, presence of average brain and abilities, and active attention, no nervous or emotional tension, absence of economic worries, absence of worry about personal and family problems.

Assisting conditions in Motor Learning—The above mentioned conditions are also applicable to motor learning as much as they are applicable to mental learning. Practice is of great importance in motor learning, because it is the only way of obtaining skill. Reward is preferable to punishment almost without exception but in some cases punishment may prove efficacious. Healthy rivalry also effects progress in motor as well as other learning but it should not be allowed to assume harmful proportions.

Knowledge of Results

The knowledge of results favours motor learning and it is an important condition because motor learning is not possible without it. In an experiment, ten students were made aware of results while they were being trained. After sometime, the light was switched off so that they no longer received any knowledge of the results. Consequently their learning curve steadily declined.

The students were aware, upto the 200th time of the results, but on subsequent occasions the light was switched off and they lost contact with the results of their work. The knowledge of results creates a tendency to repeat the successful work while there is improvement in effort and enthusiasm is magnified or boosted. Similarly, it is better to vary the work or to provide rest intermitently than to work uniterrupted for too long a time.

Affective—Conative Learning—Those conditions which assist mental learning also assist, to no small degree, the conative affective learning. This type of learning can also make considerable use of practice. The training of emotion is also significant in these kinds of learning. In affective conative learning, as in all others, punishment is of consequence in the cessation of mistakes while the making permanent of a response or the encouragement of effort is helped by reward. The elimination of the various types of tensions is also useful because they interrupt learning.

Q. 117. **Write a short note on—Transfer of Training.**

(*Madras 1962*; *Banaras 1965*)

Ans. It is a matter of common experience that we are facilitated in the learning of something new by some previous learning. The son of a businessman is proficient in the arithmetic class because of his training in accountancy in the shop. Transfer of learning implies the use of learning from one situation to a new situation either in part or as a whole. In this way, a knowledge of mathematics assists in the study of physics and chemistry.

Commonly, there are two types of transfer of learning. These are as follows—

Types of Transfer

1. Positive Transfer of Learning—In this type of transfer the effect of the training on the new type of learning is suitable or positive and learning is enhanced. For example, one group was taught Latin while another was not. Both the groups were constituted of student possessing similar interests and intelligence. Now, they were taught English for equal lengths of time together and the result was that the group equipped with the knowledge of Latin took less time and gained comparatively more skill. The reason for this is the positive transfer of the training in Latin to the learning of English.

2. Negative transfer of training—The training received in the learning of one thing hinders the learning of a new thing and it is accordingly classified as negative. For example wrestlers are weak in studies because wrestling consumes too much of their energy to leave any for studying. Thus, wrestling is a hinderance in studying.

On some occasions, learning or training has no effect as for example, the memorisation of a poem in Hindi does not affect a similar treatment of Geography. In such a context, there is no transfer of training. The transfer of learning should affect in some way or the other, the acquisition of new knowledge. If the transfer is suitable it is positive and if it is detrimental it is negative.

Some Important points about Transfer

The psychologists tried to discover the conditions which favour the transfer of training and in this context, many experiments have been carried out. Some of the important things discoverd are—

1. Transfer value of the subjects is dissimilar—Experiments carried out on the subjects taught in the schools indicate that their transfer values are dissimilar. As it is, modern psychology does not accept any subject as a training of the mind, but in spite of this fact, the transfer value of Physics and Mathematics is rated very high. The next positions are occupied by Languages and Social Sciences. While English and History have no transfer value, cooking, sewing and dancing have negative value it being implied that they are a hinderance to the study of difficult subjects.

2. *Transfer is not general but particular*--The statement about the transfer value of science and language should not be taken to mean that these subjects help in the learning of any and every other subject. Actually transfer takes place only in similar circumstances. The knowledge of Sanskrit may assist the learning of Hindi or English because of the extensive use of Sanskrit words in these languages, but this knowledge may become an obstacle in the study of Urdu and Persian instead of being useful. It could create a problem in pronounciation.

3. *The study of transferable subjects is essential if any transfer is to be affected*—If it is desired to affect a transfer of a knowledge of Sanskrit, it is better to study Hindi or Bengali while a similar treatment of Latin makes the study of English facile.

4. *Transfer depends very much upon the intelligence and innate efficiency of the learner*—This fact has been mentioned before. It has been observed in experiments that the capacity for transfer of training in one percent of the highly placed high school students is twenty times that of the capacity of one percent of the lowly placed students of average intelligence. Similarly, a person makes use of his training due to innate qualities, there making transfer possible.

5. *Transfer is due to a similarity of material and methods*—As has been mentioned before, transfer of training is possible only when the material and methods of the subject to be learnt coincide with those of the subjects learned, as exemplified by the use of Arithmetic in Accountancy.

6. *Transfer depends upon the use of facts learnt*—It has been mentioned before that transfer is not possible unless the subject learnt is put into practical use. The transfer of the knowledge of Ethics gained in school, to Social Education is possible only in the event of the student's use of the former in daily life.

It is clear from the description of transfer that it depends on the intelligence of the learner, and innate efficiency, practical capability and use of the acquired knowledge. Transfer takes place in the subject of similar matter and methods, and the teaching of it. Transfer value differs from subject to subject. While some have no transfer values others affect negative transfer.

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Q. 118. **Write a short note on Habits.**

(*Gujrat 1958*; *Muzaffarpur 1964*)

Ans. Habit can be described as an extremely automatic behaviour as all work activated by habit takes place without thinking or coming to conclusions. Some of our activities like, dressing, sitting or eating take place casually every day due to their habits. Habits may either be good or bad. Some habits like early rising, regular study, less eating etc., are classified as good habits while drinking, lying and abusing are categorised as bad habits. Every one is desirous of forming good habits, though it is difficult to know how to go about doing it.

Psychologists have come across many laws in their search for ways of forming or breaking habits, some of the important elements being mentioned below—

Formation of Habit

1. As enthusiastic a start in the work as is possible—The original enthusiasm in the breaking of habits is of importance because it helps to contradict the old habits. There is a well known English proverb *'Well begun is half done'* which means that if some work is started properly half success is naturally assured. This proverb means that any new work should be started with enthusiasm.

2. Voluntary repetition of new work—The application of will power to the formation of new habits is essential. Voluntary repetition of the new work helps to make it firm. If we want to, suppose, make a habit of getting up at four in the morning, we should go to sleep after having made up our mind to get up at four in the morning. This determination should be voluntary in its entirety. After we become used to getting up at four in the morning the necessity of making an effort in the direction is eliminated.

3. Absence of Exception—The third important principle in the formation of habits is the absence or avoidance of any exceptions in the process of formation. If, for example, a student decides to form the habit of regular study and accordingly makes a time table to which he adheres enthusiastically and strictly for about four days, but on the fifth he decides to leave it off and enjoy life for a bit, not realising the harm in this practice, he will, never form the habit he wants to. He will, instead, form the habit of putting off his work, because this tendency gradually gains strength and, in the process, weakens his will power. In reality, the most difficult step in the formation of habit is not its inception but rather the avoidance of any exceptions which may raise their threatening head. Many people take to physical exercise, but how many see it through ? The failure to take exercise one day puts you back many days in the direction of the formation of the habit. Thus, using this as an example, if you want to form some habit, do not interrupt it no matter what the pain, laziness, necessity, because if you once succumb to any allurement no extent of effort on other occasions will make up for it and you will never succeed in your attempt.

4. Use of Negative Adoption—The application of negative adoption to the formation or breaking of habits is a very advantageous idea. It means learning not to do the habit or response and is only a form of conditioned response. If an adult mouse is given an electric shock every time he comes near female mice, he will gradually avoid them. If a drunkard is given adulterated wine which causes him to vomit violently he will run away from wine.

Breaking of Habits

The formation or breaking of habits represent two factsof the same action. If we want to form the habit of early rising, we will have to give up the one of late rising. The habit of daily exercise involves the riddance of the habit of abstaining from exercise. Thus to break a habit, it is necessary to from a contradictory habit, as the formation of the habit of early rising involves the giving up of the habit of late rising. Thus, the same three laws, those of the formation of habits, prove efficacious in the breaking of habits.

If some drunkard, of somewhat regular habits in this direction, wants to give up his habit of drinking he is well advised to make an enthusiastic beginning and to avoid drinking, inconsiderate of any distractions whatsoever. If a regular smoker finds himself unable to think of any discrepancy in smoking one more cigarette, he will never give it up, even if he were anxious to do so. One intending to give up a habit should simply sever the rope like Surjaji, a prominent courtier of Shivaji. He once entered the castle of an enemy by climbing up a wall with the help of a rope. When the scrimmage started some less determined elements in his group beat a hasty retreat to the only mean of escape, the rope. Surjaji did not approve of this, and, not intending to put up with this show of cowardice, he cut the rope so that this element found inspiration from the inability to escape. They fought gallantly and won the battle. Similarly if you think yourself the better without it don't give the habit an opportunity to establish itself and to become permanent.

Some of the important laws connected with this subject are explained below.

1. Breaking of habits by voluntary practice : To make a practice of making a mistake wilfully is a good way of getting rid of it. Mistake in typewritting can be conclusively eliminated by their wilful repetition. If a person persists in spelling 'the' as 'hte'. he should commit the mistake knowingly in order that he may get rid of it. If we knowingly spell it that way time and again we become used to it and are in a position to control it and eliminate it, we are unable to control many habits like wrinkling the nose, making faces, coughing uselessly because we are in the dark about their causes. Conscious repetition tends to give us a control over them, thus facilitating their cessasion at will.

2. The conception of a contradictory habit of conditioned response : It is sometimes possible to break a habit by the formation of a contradictory habit. People frightened of a mob can be cured of it by being forced to attend. If a person has fallen into the bad habit of remaining quiet in company he should force himself to speak wherever four people collect. He will get rid of this habit.

3. Breaking of habit by doing it to excess : Some habits are broken by doing them excessively. If a drunkard drinks too much and makes himself ill, the bitter experience may break his propensity towards drink, though this depends very much on the effect the illness has on the individual and the strength of his habit. And this makes it clear that all habits cannot be broken by bitter experience and loss of interest.

4. Formation of other habits : Some people desirous of breaking a habit adopt the unpsychological method of struggling with the habit, taking oaths ever so often of giving it up, and concentrating upon it This method, is rarely, if at all, successful. If a habit has to be broken, it does not pay to struggle with it, but to form some new habit contradictory to the previous one, to forget about it and substitute some other work for it. If we, for example, want to give up smoking, it will serve no purpose to worry about it and to get excited. One should become indifferent towards cigarettes, indulge oneself in some other work and put some chewing gum or lemon drops in the mouth whenever there is a desire to smoke.

5. *Meditating on the evil aspect of the habit* : Indian psychologists have laid great importance at the meditation on the evil aspect of habit in the breaking of a bad habit. One should not run from a cigarette but analyse and contemplate the harms involved. It makes the breaking of habit easier.

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Q. 119. **Differentiate between human and animal learning. Support your answer with examples.** (*Agra 1961*)

What are the main points of difference between animal and human mind ? Compare the process of learning in man and in higher animals. (*Agra 1958*)

Animal and Human mind

Ans. The main difference between the animal and human mind is related to the nervous system which, when compared to animals, is very highly developed. By virtue of this man can understand and do things beyond the powers of animals. The second difference, between the animal and human mind is in relation to the feeling and association. These are indisputably more in animals than in men. The third point of difference is the difference in intelligence and here the superiority of the human being is very marked because it is a special characteristic while the animals have very little of it. To differentiate him from animals, man is called an intelligent living being. The fourth difference, the creation of this difference of intelligence, is the difference in the faculties of reasoning, logic and control. The fifth difference is the ability to use language and numerals. The animals are completely devoid of these abilities while man is in the possession of these abilities which increase his faculties of reasoning and thinking. Besides, there are major differences in imagination, memory and perception between the two species of life under consideration. The animals have very rudimentary capacities of imagination and memory. Some animals may have a specific sense organ more developed than the corresponding one in human beings but, in general, man's capacity of perception is more than that of the animals.

Human and Animal learning

It is quite obvious from the preceding account of the differences between the animal and human mind that there should be differences in their activities of learning because learning depends upon mental faculties. Thus, while most of the animals learn by trial and error, some higher species of animals do so by insight. On the other hand, most of the learning in human beings is by insight and even when he employs trial and error method he recognises errors quicker than animals and understands them, thus enabling himself to amend them. Being endowed with more powers of observation, a man observes quicker than an animal does, and, as a consequence, takes less time in his learning. Briefly, both animals and human beings learn by trial and error, insight, imitation, conditioned reflex, and negative adoption but a man takes less time due to his superior mental faculties and he uses the insight method extensively.

Prof. R. S. Woodworth recounts the following factors which are the cause of superiority of human learning over animal learning.

Woodworth's opinion

1. Man is a better examiner than animals. He examines those peculiarities of objects, human beings and situations which are beyond the capabilities of animals.

2. Man uses far more thinking, organisation and control in the solution of a problem.

3. Man employs names, numbers and language very extensively in his learning, something which the animal is not able to do.

4. Language helps man to contemplate over problems even when the object is absent. He remembers the object, collects facts seen at different times, reasons and makes plans.

The above differences or peculiarities can be observed in human learning. They are the basis of his superior capacity of learning as compared to the animals.

* * *

Q. 120. **What are the chief methods of learning ? Which of these methods are influenced most by motivation ?** (*Agra 1960*)

Ans. The main methods of learning are :

1. Trial and Error
2. Insight

3. Conditioned Response
4. Imitation

For a description of these methods, please refer to the Qs. Ans. concerned.

Effect of Motivation on the Methods of Learning

Actually it is difficult to say with any certainty that such and such a method is the most affected by motivation, because in the absence of motivation learning is all but impossible. Jnspite of this, the effect is the least in insight method of learning, because in this method the emphasis is on the brain, and the effect is the maximum in conditioned response learning. As is obvious from Pavlov's famous experiments on dogs, the establishment of conditioned response is verily impossible if there is no motivation. If the dog is not hungry, he will have nothing to do with the sound of the bell. It is only because he is hungry that he relates the bell to the food. Similarly, motivation is important in trial and error. The cat does not make any effort to come out of the cage if she is not hungry. It is only motivation which forces man to make an effort to learn something.

Q. 121. **Discuss briefly various theories of learning.**

(*Gujrat 1955*; *Bombay 1964)*

Ans. Besides some recent developments regarding the theories of learning, the main theories are :

1. The behaviourist theory of learning
2. The Gestalt theory of learning
3. The Hormic theory of learning

According to the behaviourist theory learning is either conditioned response or trial error. These have been discussed in detail in Qs. No. 123 and 124 respectively. According to Gestalt theory all learning is through insight. This has been discussed in Q No. 115. Watson, the founder of Behaviourism agrees with Thorndike's laws but rejects the law of effect. Mcdougall (Hormic) and Koffka (Gestalt) reject the law of frequency. According to Mcdougall the founder of Hormic school learning is purposive while for Watson it is mechanical. Hormic theory explains learning with reference to the theory of instincts.

All these theories are one sided. Each emphasises particular method of learning and explains all learning through it. Modern psychologists do not owe allegience to any one of these,

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Q. 122. **Define learning. What are the principal forms and laws of learning ?**

For definition of learning see Q. No. 112.

Principal Forms of Learning

The principal forms of learning are, learning through conditioned response, learning through trial and error, learning through insight and learning through imitation. All these four forms are equally utilised by animals as well as human beings. For a description of trial and error, insight, conditioned response, see answers to the Q. No. 123, 115, 124 respectively.

Learning Through Imitation

Learning through imitation is one of the most important forms of learning. The human child learns mostly through imitation. It is a common place observation that children imitate the behaviour, habits, manners and ways of adults. In imitation the learner exactly copies the behaviour of another person without understanding or thinking. Whenever this copying is observed, it is said that one has learned through imitation.

The main characteristics of learning through imitation are as follows :

(1) The imitator never does it before imitation, but performs the activity at once.

(2) The imitator does not know earlier the activity to be imitated.

(3) In imitation the learner exactly copies the activity performed before him.

In many of the experiments of animal learning, it was clearly seen that animals learn by imitation. In an experiment a particular instrument was used to find imitation in monkeys. In this instrument there were two cages in which there were puzzle boxes placed in exactly the same situations. One monkey was put in each cage. The monkey who had to initiate, was taught to open the puzzle box. The monkey who had to imitate saw the other monkey opening the puzzle box which was also placed in its own cage. After seeing the act cf opening the puzzle box, the imitator was given a chance to perform it, on his own puzzle box. If it does not do successfully within a minute, the experiment is held as unsuccessful. Now the monkey is given a new type of puzzle box, less complex than the older one and the same processes are repeated again. In such experiments it was found that out of the 15 monkeys a monkey could cope the solution of 23 problems out of 24. Animals lower than the species of monkeys, e, g., dogs, cats etc. do not show as much capacity for imitation. As a matter of fact no imitation was observed in them.

Among the living beings man is the best imitator. In human learning, especially that of the human child, imitation has an important place. In an experiment, 42 children of Ist Standard were selected. Two boxes were placed on two chairs in a room. There was a bit of candy in one of the boxes. A place was fixed to start with. The leader of the boys was told which box was to be opened. As he opened the box, he found a piece of candy. Then another boy was asked to open either of the boxes. If this boy imitated the leader he got the piece of candy. If he did not imitate he got no reward. In every experiment both boys were made to stand on the start. In the first experiment they were told that "Here are two boxes here and there. There is a piece of candy in a box. You have to find the piece of candy. He will get first chance, then you will get chance. If you could get it in the first chance, you will get another chance." The leader was always given first chance. The piece of candy was not always kept in the same box. 20% of the boys imitated in the first chance. The rest 80% boys did not imitate. These boys might have reasoned that because the leader has already taken out the piece of candy from the box, so it could not be there. On an average in one out of 3 experiments every second boy imitated the first boy. When the situation was changed and four boxes were placed on the four corners of an imagined square, 75% of the children imitated. This shows that the tendency of imitation learned in the first situation was generalised or transferred into an individual direction. In other experiments the children were rewarded for not imitating the leader. This tendency of not imitating the leader was cent-per-cent transferred to new situation. It is important to note in this experiment that the children were asked to imitate an activity, which they could easily do, *e* g. all of them could reach the box, open it and take out things from it. In the complex activities this point is even more important.

The process of imitation is very important in learning. The teachers could make a wide use of this fact. Education becomes easier and more perfect by demonstration. It is a well known fact that the students often imitate the manners, ways, methods, habits and many other things from teachers. Thus by presenting good ideals himself, the teacher can easily create the same ideals among the students. In the teaching of dance, music etc., demonstration is even more important since imitation has an important role in them. The efficient teachers generally demonstrate whenever it is possible and encourage the students to learn by imitation.

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Q. 123. **What is meant by conditioned response learning? Bring out its important features.**

(*Poona 1960*; *Gujrat 1964; Madras 1964; Mysore 1962*)

Write short note on conditioned reflex.

(*Bombay 1959*; *Punjab 1959, 1960*; *Gujrat 1957*; *Karnatak 1953, 50*; *Muzaffarpur 1965*; *Jodhpur 1965*)

Examine critically the conditioned reflex theory of learning.

(*Gorakhpur 1962*; *Lucknow 1958*; *Banaras 1966*; *Poona 1960; Patna 1962*)

Describe a conditioned reflex. (*Baroda 1959*)

What do you understand by conditioned reflex? Can all learning be explained in teams of conditioned reflex?

(*Bombay 1959*; *Banaras 1964*; *Raj. 1950; Agra 1959,1957*)

Ans. Conditioned Response is one of the important processes of learning. It was Pavlov, the famous Russian physiologist who for the first time experimented about the conditioned response in 1900. Pavlov operated upon a dog and removed its salivary system from the cheek in a set way so that the saliva could be gathered in a test tube and measured. The dog was made to stand before a window. In the experiment the food wa given to the dog through the window. Before giving the food the bell used to be rung. As soon as bell was rung, saliva began to flow from the mouth of the dog, because bell was taken as a sign of food. As the bell is not the natural object for the response of the flow of saliva so the response is a conditioned one. The saliva flowing from the mouth of the dog was collected in a glass pot which was graduated. As the saliva fell in the pot there was pressure due to which the lever was pressed. Due to pressure on the lever the lines were drawn on the smoked screen. By these lines the experimenter could find out about the number of the drops of saliva and the regularity of its flow. From this experiment Pavlov came to the conclusion that the response of the dog can be conditioned to a stimulus other than the natural one. In this form of learning the individual or animal learns to behave towards an object other than the natural one, because of its connection with it. According to Pavlov all learning is conditioned. This view was not admitted by the modern psychologist as soon as the other methods were found to be equally important in learning, e.g., the method of trial and error, the method of insight, the method of imagination etc. Yet no one denies the importance of the conditioned response in learning in animals as well as among human beings.

The factors controlling conditioned method are as given below :

1. *The effect of the Motives*—Motive has an important effect on the conditioned response. For the conditioning of the response, the stimulus must have the capacity to evoke the response. In Pavlov's experiment the dog was hungry, hence it associated the bell with the food and not food.

2. *Time Relation of the two Stimuli*—Another important factor controlling conditioning of response is the time relation of the two stimuli. The time relation between the two stimuli is important, since conditioning of response depends upon their being associated with each other It is necessary that before the response subsides the new stimulus must be perceived along with its natural sequence, that is to say that first there should be new stimulus and then the old one. In Pavlov's experiment it was neccessary to ring the bell before giving the food and the food must be given after ringing the bell, before the response had subsided. If there is too much interval or lapse of time between the two stimuli, it shall be difficult for the animal to find out the relation between two. Suppose a dog is given food after an hour of ringing the bell, it will not find out any relation between the two stimuli. The learner links only those stimuli which are closely related in time.

3. *Repetition of the stimuli*—The third factor controlling conditioning of response is the repetition of the stimuli. In Pavlov's experiment the dog was given food after the bell was rung several times. If the dog is given food always after ringing the bell the saliva begins to flow from the mouth as soon as the bell is rung. This repetition of the stimuli is necessary in the beginning.

4. *Absence of the disturbing Stimuli*—The fourth factor controlling conditioning of response is the absence of the disturbing stimuli. As the disturbing stimuli will increase, conditioning will become difficult. In Pavlov's experiment the room used was without windows and sound-proof. If there is some other stimulus in knowing us between the two stimuli, the conditioning will be difficult because the learner will not be able to link the stimuli.

As a general rule higher the species of the animal, the more easily conditioning of response is achieved. Thus conditioning should be the easiest in the case of human beings. But man is a complex animal and hence the factors which distract his attention are larger in number than in the case of other animals. However, inspite of these distracting elements in the conditioning of responses it certainly remains one of the most important methods of learning, especially in the case of children. In childhood many of the responses of the child are conditioned to particular objects and even when the individual becomes an adult, his conditioned response continues, e.g., if a man behaves wrongly with us, we develop a kind of fear, abhorrence or hatred with every person resembling that person.

As has been pointed out earlier, modern psychology does not uphold the view that all learnings are conditioned, but no psychologist denies that conditioned response is an important method of learning both in the case of animals as well as human beings. A person can find hundreds of examples of conditioning of response in his daily life, e. g., if it is habitual with us to put our purse in our right pocket, our hand automatically goes to the right pocket even if the purse at a particular time is put in the left pocket or somewhere else. In this example there is a clear condition response which is a result of putting the purse in the right pocket and taking it out from that pocket so many times. Thus the activity of taking out the purse is closely linked with the right pocket. In the case of the tamed animals the conditioning process is very much used to teach so many activities. The conditioning of response as it is established, can also be extinguished. In the establishment of the conditioning the stimuli has to be repeated while in its extinction the stimuli is not repeated. Thus in the example of Pavlov's dog, if the dog's response has been conditioned by the ringing of the bell, it will be de-conditioned if food is not served inspite of the ringing of the bell or food is served without ringing the bell. Similar examples of de-conditioning process can be found in the case of human beings. Suppose a person is used to go out for a walk to a bridge with a certain friend, he will always remember his friend when he is absent. The sight of the bridge will make him recall his friend, because he always used to come with him to bridge. Thus the bridge and the presence of his friend have been linked. Now if the friend is absent and returns after a long time and the man has to go alone for a walk, he will forget his friend gradually and the sight of the bridge will no more awake the memory of him. In this example one finds de-conditioning of a certain response to a particular stimulus. Just as a response can be de-conditioned, it is also reconditioned. Conditioning, de-conditioning and re-conditioning, are governed by the same fundamental principles.

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Q. 124 . **Write short note on : Learning by trial and error.**
(*Punjab 1959*; *Karnatak 1965*)

Describe the nature of trial and error learning and bring out its main features.

(*Agra 1962*; *Punjab 1959; Poona 1959; Patna 1962*; *Alld. 1959, 58 Jodhpur 1965*)

Ans. One of the most important methods in learning is known as trial and error. It was Thorndike who for the first time declared that all learning is trial and error. Thorndike was interested in finding out how the animals learn. He placed a hungry cat in a puzzle cage and put some food outside the cage. The cat was hungry and so it tried to come out of the cage. There was a particular device to come out of the cage. As the cat did not know the device, so it tried haphazardly, sometimes striking here and sometimes there. Thus trying for a period of time it some how pressed the button and came out of the cage. It was put in the cage and again it tried several times to come out of it and finally came out by pressing the button. When this was repeated several times, the cat learned to come out of the cage by pressing the button. In this example Thorndike found that the cat learnt the trick to open the cage by trial and error. Thorndike experimented on many other animals also and concluded that all learning is by trial and error.

The method of trial and error is used in the following states—

(1) This method is used when the learner is completely motivated and can see the goal clearly. If the cat is not hungry it will not try to come out of the cage or leave the attempt after trying it without success for some time. The cat tries to come out of the cage simply because it is hungry and knows that there is food outside the cage. In the absence of the food outside the cage the cat will not try to come out of the cage. Thus it is clear that motivation as well the presence of the goal is necessary for awakening the response of learning in the animal or human being.

(2) The method of trial and error is used when perception is alone or learned activities are not sufficient. If the cat could come out of the cage by merely moving in some direction, there was hardly any need of several trials and errors.

(3) The method of trial and error is used when the learner fails to find the solution of the problem. In Thorndike's experiment the cat used trial and error method simply because it did not know how to come out of the cage. In the case of human beings in such situations, if the subject knows the solution of the problem, there is hardly any question of trial and error. It is only when he fails to find out the solution of the problem that he proceeds blindly trying in various directions, commits errors eleminating them and finally arrives at the successful solution.

Thus the method of trial and error is widely used by both animals as well as human being. In the case of human beings however, this process is somewhat different, because man has high powers of perception, understanding, intelligence and language etc. Man uses the method of trial and error, but he also takes the help of language and other instruments in the process of learning.

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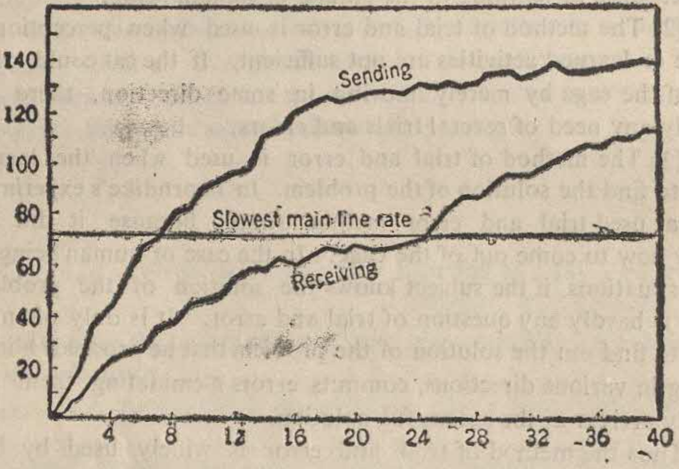
Q. 125. **Write short note on Learning Curve.** (*Punjab 1960*)

Write short note on—Physiological limit. (*Poona 1959*)

Write short note on—Plateau of learning.

(*Vikram 1962*; *Banaras 1964*; *Agra 1959, 1958*)

Ans. Learning is not always a continuous process. Sometimes there is a steady progress in a learning while at other times there is hardly any progress in it. Some times one notices even retrogression in the process of learning. Thus full progress of learning in the case of student of telegraphy is shown on a graph paper. One finds a learning curve rather than a straight line. In the learning curve given in the figure below, the upper curve shows the speed of the words sent per minute. The rise of the curve shows the progress in sending or receiving of the words. At one end of the curve, one notices a plateau of learning.



The facts are clear from the above figure of learning curve, initial spurt and plateau. The initial spurt can be seen in the curve of all types of learning. In the learning process there is a progress in the beginning and the speed increases with the increase of practice. In the subjects where insight is possible it increases learning very much. But in other types of learning the learner sometimes reaches a stage when the curve instead of going upwards seems to be horizontal and no progress is recorded for a certain distance. This flattened surface is called plateau of learning. In the figure given above one finds the receiving curve rising gradually unless it arrives at the physiological limit after which a flattened surface is noticed. The curve again rises after the plateau of learning. The reason for this rise is the co-ordination of the simpler habits with the complex ones. In the figure given above there is no plateau in the learning curve.

There can be several reasons for the plateau of learning, of which the most important are given below :—

(*1*) *Absence of the proper motive*—The most important cause of plateau is the absence of proper motive. Their speed increases after getting sufficient motivation.

(*2*) *Insufficient co-ordination of the simpler habits with the more complex ones*—As it has been said earlier learning requires co-ordination of the simpler habits with the complex ones. When this co-ordination is achieved, progress is noticed. Hence insufficient co-ordination is one of the causes of plateau in the learning curve. This can be seen in the habits of sending the letters and words in telegraphy.

(*3*) *The conflict of old habits with the new habits*—Learning requires new habits. Hence there is a conflict of the old habits with the new ones, e. g., a man used to a particular method of learning will find it difficult to leave and to adopt a new though more profitable method.

But when the learning method reaches the physiological limit, further progress becomes difficult. In the case of the curves of time when a man reaches a point after which he cannot progress, it shows his physiological limit. As, for example every learner has a physiological limit, beyond which he cannot break his records. If one finds no progress even when a certain task is done, with the right process, one should suppose the existence of physiological limit. But it is very difficult to determine the right method. The daily amount of work put in by the labour should not be taken as his physiological limit, because in the presence of new motives he shows much progress. Often one wonders as to how much more work he can put-in due to some new motives. It has been seen that a young man who did not like to work for long hours, could work for 12 or 14 hours due to motivation from his beloved or wife etc. As a matter of fact man is the most dynamic and adjusting animal and his physiological limit is not the same with all men of the same age. On the same age level some men can always work more than others. Again, in the same person also physiological limit is changing and flexible. It is a common place experience that a man can work more while young in comparison to his old age. Again, the physiological limit in different types of learning is also different with the same learner. Hence the physiological limit for a particular man in a particular type of learning at a particular stage can be determined only by experiment. But no one can deny that such a limit does exist and that the learner can not improve upon it appreciably.

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17

INTELLIGENCE AND INTELLIGENCE TESTS

Q. 126. **What is meant by intelligence in psychology ? Is it a single ability or a sum of abilities ? Discuss.**

(*Alld. 1959*; *Agra 1955*)

What do you understand by intelligence ? Give a brief account of the test which have been derived to measure intelligence. How far are these tests reliable ?

(*Punjab 1963*; *Jodhpur 1965; Baroda 1964*)

What is the nature of intelligence ? How is it measured.

(*Baroda 1963*)

Write short note on—Nature of intelligence.

(*Muzaffarpur 1965*)

Ans. The word intelligence forms part of our ordinary stock of words which we use every day. In the field of psychology too, the word intelligence finds a fairly comprehensive use, but it has been defined in a number of ways by the scientists. Some of these definitions are given below :

Definition of intelligence

1) *Intelligence is the ability of adjusting in a new situation* : According to Wells, "Intelligence is the property of recombining our behaviour pattern so as to act better in a novel situation." In William Sterns' opinion, "Intelligence is the ability to adjust oneself to a new situation."

These definitions are faulty in the following respects :

(a) They fail to clarify the full scope of intelligence.

(b) Intelligence and adjustability are not the same. Intelligence is innate but adjustability is mostly learnt.

(2) *Intelligence is the ability to avail of past experience* : Both Ebbinghaus and Thorndike define intelligence as the ability to make profitable use of past experience. In other words, intelligence is the ability of learning.

This definition has the following defects :

(a) Learning and intelligence are not identical because learning depends on many things besides the latter.

(b) This definition does not describe the full scope of intelligence.

(*3*) *Intelligence is the ability of abstract thinking* : According to Garret, one may define intelligence as including "the abilities demanded in the solution of problems which require the comprehension and use of symbols." In Terman's opinion, "Intelligence is the ability to think abstractly."

This definiton suffers from the following defects :

(a) Abstract thinking is not intelligence, it is only a part of intelligence.

(b) This definition fails to describe the complete scope of intelligence.

(*4*) *Intelligence is the conglomeration of many powers* : In Wechsler's opinion, "Intelligence is the aggregate or global capacity of an individual to act purposefully, to think rationally and to deal effectively with his environment." Computing the different powers of intelligence, Husband has said, "An intelligent person uses past experience effectively, is able to concentrate and keep his attention focussed for longer periods of time, adjusts himself to a new and unaccustomed situation repidly, with less confusion and with fewer false moves, shows variability and versatility of response, is able to see distant relationships, can carry on abstract thinking, has a greater capacity of inhibition or delay and is capable of exercising self-criticism."

Actually, Husband has given a very good description of an intelligent person but intelligence cannot be accepted to be the sum total of all these qualities. The psychologists, however, differ in their assessment of intelligence as a power or a collection of many powers. A description of the different theories concerning the nature of intelligence will help us to understand the various interpretations of the form of intelligence.

The following are the main theories concerning the nature of intelligence :

Theories of intelligence

(*1*) *Monarchic Theory* : This theory holds that intelligence is one power or energy which effects all the activities of the individual. According to Victoria Hazlitt, intelligence is a general ability which determines the various specific particular abilities. This theory has been proved to be fallacious. Prominent people show a less than average ability in many activities. For example, Darwin had a very bad handwriting.

2, *Oligarchic Theory*: This theory postulates that intelligence is an aggregate of mutually independent powers. Binet believed this theory. Experiments disproved this theory by showing that mental powers are interdependent.

(3) *Multifactor or Anarchic Theory*—Thorndike is the most prominent among those who belive this theory. This theory holds that intelligence is the mean of undetermined independent rudimentary elements. But Spearman has criticised this theory.

(4) *Two factor Theory*—This theory was conceived by Spearman who holds that intelligence has two parts—(1) General Intelligence or G, and (2) Specific Intelligence or S. General intelligence effects every activity but the effects of the specific intelligence are confined to specific activities. General intelligence is found in lesser or greater degree in every one. Specific intelligence is of various tyres the several types being independent of each other. They differ from individual to individual. This intelligence of a person depends on his general intelligence.

Staffens and Brown have upheld Spearman's theory on an experimental foundation. But Pears asserts that adequate experimental data, in its favour, is not available and consequently even Spearman's theory cannot be said to be universally acceptable.

In reality enough experiments are still needed to formulate an all-embracing definition of intelligence. In this connection, a universally acceptable theory has yet to be worked out.

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Q. 127. **What are the usual contents of an intelligence test? Describe any test of intelligence that you have used.**

(*Madras 1962, 1964*)

Write a short account of the development of intelligence tests. Describe fully any intelligence test that you know.

(*Agra 1960*)

Explain the (a) Types (b) standardization and (c) Administration of Intelligence tests. (*Poona 1965*)

Development of Intelligence test

As the new individual dissimilarities came to light, psychologists tried to measure the various individual differences, and to

Galton's Tests

this end, different tests were evolved. Among these tests the one's devised to measure intelligence achieved a lot of fame. Near the close of the 19th century, Galton developed some tests to measure the work of the different organs. By these Galton measured sensory discrimination, sensory perception and sensory acuity. Though these measures are not directly related to intelligence they may be accepted as the fore-runners of intelligence tests.

Tests by Cattell and Ebbinghaus

In 1880, Ebbinghaus prepared many tests to measure the differences in intelligence of various individuals. In 1890, a famous American psychologist evolved some mental tests on the basis of these tests. Cattell measured individual differences between some students of Columbia University in respect of the speed of reaction, sensory acuity, memory and some other simple mental activities.

Alfred Binet Tests

But in reality, the first concrete step in the direction of intelligence tests was taken by a famous French psychologist Alfred Binet. Alfred Binet was doing some research in the mental activities of school going children. In the course of his research he observed that in order to give any useful education to the feeble minded children it is essential to put them in special classes. In order to investigate this subject a committee headed by Binet was formed in 1904. The first difficulty, concerning the study of feeble minded children, was the need of a scale with which to measure the intelligence of children.

Binet Simon Scale

With Simon's assistance Binet developed and published a scale in 1905, known as the Binet Simon Scale. In this scale, some 30 tasks, from the simplest to the most complex, were presented in a serial order. On the basis of experiments with the average and feeble minded children carried out with the help of this scale Binet and Simon determined norms for various age levels. According to the Binet-Simon intelligence tests, if a five year old child is capable of performing tasks which an average child of three can perform, his mental age will be rated as three years and if that child fails to perform more than the first six among the thirty tasks he will be classed an idiot.

Adaptation of the Binet-Simon Tests

Binet and Simon made revisions in this scale from time to time. The first revised scale was published in 1908. From the success of the revision, psychologist of other countries created intelligence tests suitable to the environment of their own countries. Among them, Burt's London Revision and Terman's Stanford Revision are more famous. The modern revised edition of the 2nd revision was published in 1937 under the name of Terman Merrill scale.

Terman Merrill Scale

In the Terman Merrill scale, which was a revision of the Stanford Binet scale, some more subjects, related to intelligence tests, were included. It now became useful for the age range, of 2 to 18 years. In this scale, there were provisions for two types of tests, yearly and half yearly, for children belonging to the age group of two to four years. Many other subjects were included for the adult people. For every age group, there were six to eight subjects. In this scale there are tests which enable the examiner to examine the intelligence of individuals in a very short time.

In Indian conditions, Binet's tests were adapted for the first time by Dr. C. Herbert Rice. But its revised form is almost completely different from the Binet tests. These tests were compiled in Urdu and Punjabi. There are two types of scales in it, one having 10 tasks, the other 35 tasks, and it was the smaller scale of tests which proved dependable. In 1927, Dr. J. Menry of Christian College started verbal group tests in Urdu, English and Hindi. In 1933, Mr Lajja Shanker conceived of group tests for children from 10 to 18 which adopted a revised and studied form of Terman's group tests. Besides these, the group tests started by Dr. Jalota of Lahore, in Hindi, Urdu, and English proved very valuable. In Bihar under the direction of Dr. S. M. Mohsin, a test battery was constructed to measure mental abilities and intelligence of participants in many group tests. In the non-verbal group tests, Menzel has created tests founded upon the ability of Indian children in drawing. Besides, Mr. I. R. Kumaria organised group tests for college students. The other important contributions in this direction have come from Dr. Lalit Kumar Shah, C. T. Philip, H. C. Banerjee, D. H. Roy, T. P. Bhowmick and S. H. P. Maitti. The above description makes it quite clear that not much work has been done in the direction of non verbal tests. There is hope of development in this direction in the future.

Forms of Intelligence Tests

Intelligence tests are classified according to the activities prescribed in them—

1. Verbal Tests
2. Non-Verbal Tests

As the name itself suggests, Verbal tests make use of language while the non-verbal tests include such activities which do not necessitate the use of language. Both these types are suitable for individual as well as group tests. Consequently, Verbal and Non-verbal tests are capable of further subdivision into two classes—individual and group. Thus, finally there are four types of intelligence tests—

1. Verbal Individual Intelligence Tests
2. Non-verbal individual Intelligence Tests
3. Verbal group Intelligence Tests
4. Non-verbal group intelligence Tests

Verbal Individual Intelligence Tests

The very name verbal individual intelligence tests, suggests that these are intelligence tests given to individuals, or in other words they are meant to test the intelligence of individuals. Language finds adequate use in them. Binet Simon tests and the various revisions are all included in this classification.

Hindi revision of the Terman-Merril Scale

The Central Bureau of Psychology of Uttar Pradesh has made a Hindi version of the Terman Merrill Scale. This revision includes a variety of material, from solid objects to difficult questions. The activities in the beginning are simple like constructing a bridge or a tower of blocks or fitting in irregular wooden blocks in their proper place supplied for them. At the same time, at the end of the tests there are difficult questions which need considerable thinking. This test is divided into numerous age groups. The higher age groups use language to a considerable extent and its use gradually declines with the age group. For example, the two years group includes the following activities :

1. The form panel with three holes,
2. Recognition of objects by name,

3. Recognising the organs of the body,
4. Making a tower of blocks,
5. Naming an object from its picture,
6. Word order.

The various types of activities in the "superior adult third" are as follows :

1. Vocabulary
2. Sense of direction
3. Paper cutting
4. Logical discussion
5. Repeating nine digits

Non-Verbal Individual Intelligence Tests

It is quite apparent from the above example that in verbal tests, the child's knowledge of language is more in demand and therefore the use of these tests is limited to students or literate persons. But these verbal tests cannot be used in the case of illiterate individuals as these tests involve an extensive use of language which fails as a medium to measure the individual differences between the illiterates. Consequently, illiterate individuals are tested with the help of Non-verbal Individual Intelligenee tests. The name itself indicates the nature of these tests. These tests involve the least possible use of the linguistic ability and are similarly almost uneffected by knowledge derived from books. One example of these non-verbal tests is the Performance Intelligence Tests.

It would be in keeping with the context of our discussion to under standin detail the Performance intelligence test as an example of the non-verbal individual intelligence tests.

Performance Intelligence Test

According to Munn, "The word performance is usually applied to tests which require a minimum use of understanding and language." Thus, these tests make use of items requiring responses and not language and these tests can be applied to children, illiterates, feebleminded individuals as well as to foreigners.

Pintner-Patterson Peformance Scale

One example of the performance intelligence tests is the Pintner-Patterson Performance Scale. It was evolved by Pintner and Patterson in 1917. In this scale there are 15 types of tests, of which 7 are form boards, 6 picture completion, memory span and the rest are picture puzzles and imitations etc.

Porteus Maze tests

Another example of the performance intelligence tests is the Porteus Maze tests. In it paper and pencil mazes are used. For his tests, Porteus created mazes for children from 3 to 14 years. It gets difficult, corresponding to the increase in age. The subject is allowed two chances and if he fails in the attempts then the conclusion is that his intelligence is not of that age level. Children of 12 to 14 years are given four opportunities. These tests designed by Porteus not only measure intelligence, but they also reflect at the same time the nature of the individual. It is distinguished from tests in as much as that it includes some aspects ignored by such tests as the Stanford Binet tests.

Form Board Test

A comparatively simple example of the performance-intelligence test is the form board test, among them the tests of Seguin and Goddard deserve special mention. In the form board test, there are numerous blocks and a board in which there are holes corresponding to blocks. The subject has to fit the blocks in these corresponding holes in the board, the time taken and mistakes committed being noted from which the score of the test is calculated.

Wechsler Bellevue Test

Another example of the performance intelligence tests is the Wechsler Bellevue test, evolved in 1939, meant for people from 10 to 60 years of age. Speaking on the subject, Shaeffer and Lezares wrote, "In a modern clinic, these tests are included in the Binet class as one of the most important. In this way it is the most apt test for measuring the intelligence of adults. In this test there are five verbal tests and five performance tests. This test affords not only an index to mental abilities but also a profile of abilities.

Bhatia's Battery of Performance Tests

The description of performance intelligence tests would be incomplete without a mention of Bhatia's battery of performance tests. It is the battery created by the former director of Uttar Pradesh psychological laboratory, Dr. Chandra Mohan Bhatia. It has the following 5 subtests—

1. Kohez Block Design Test—10 items of tests out of the Kohez block design test have been included in the battery. There is one card on every subject upon which is depicted a colour design. The subject or the examinee see this design and makes a similar one out of the blocks. These designs become correspondingly more and more complex, having been simple at the start.

2. *Alexander Pass Along test*—The Bhatia battery also includes the Alexander Pass Along test, in which too there are some designs seeing which the subject shifts coloured pieces in an open box and places them in a similar design.

3. *Pattern Drawing Test*—This test has been created by Dr. Bhatia himself. In this there are eight cards on each of which there is a one-line figure. The subject draws a particular figure or pattern after seeing this figure.

4. *Immediate Memory test* : Some digits are recited, which are immediately repeated by the subject, this ability throwing some light on the immediate memory of the subject.

5. *Picture Construction Test* : In this subtest there are five subjects, in which pictures relating to the Indian rural life are fragmented into respectively 2, 4, 6, 8 and 12 pieces. At one time, pieces of one picture are placed before the subject who puts them in order and constructs the picture.

Besides these tests the Uttar Pradesh Bureau of Psychology has prepared a battery of performance intelligence tests for children of 4 to 10 years.

Some difficulties are felt in the operation of both the verbal and non-verbal types of individual intelligence tests. They are roughly as follows :

Difficulties in the Individual Intelligence Tests

I. The difficulty of time : The individual intelligence test takes an hour usually and only one person can be tested at one time. Obviously, at this rate it would be essential to have a very big number of trained examiners and in spite of that it would be difficult to test all the people.

3. *Need for experienced examiners* : The second obstacle, in the individual intelligence tests, is the need for experienced examiners because the correct result cannot to arrived at if the examiners are inexperienced. At the same time the availability of such a large number of trained personnel is a near impossibility.

Notwithstanding these difficulties, in some circumstances the individual intelligence tests become unavoidable. This is because the level of accuracy reached by the individual intelligence tests in the assessment of a person's intelligence, is outside the reach of the group intelligence tests.

Verbal Group Intelligence Tests

The group intelligence tests owe their origin and evolution to the difficulties from which the individual tests suffer. As the name suggests those tests are designed to test the intelligence of a group and not of an individual. All the people in the group are given the same directions and have to perform the same activities. Even the score of the result of group intelligence tests is calculated by machines thus dispensing with the necessity of skilled examiners accompanied by an economy of time.

Army Alpha and Beta Test

An excellent example of group intelligence tests is afforded by the Army alpha and beta tests, which were evolved during the World War I in order to test the American soldiers. For example it revealed separately the feebleminded, men capable of becoming skilled specialists, men capable of becoming officers, men needing some training, etc.

Naval and Army general classification tests

Due to the success which attended these tests, some group tests for classification of naval and army soldiers were evolved during the Word War II, and of these, two particular forms deserve mention. The two are :

1. Naval general classification tests.
2. Army general classification tests.

With the help of calculations made by Cruze, some one billion people were tested by the military general classification tests during the years 1941 to 1946. In the tests there are three subjects for the testing—problems relating to vocabulary, problems relating to mathematics and problems of counting blocks.

Dr. Sohan Lal's intelligence test

The psychological laboratory employs the group test evolved by Dr. Sohan Lal for 11 year old children. Tests were also designed for 13, 14 and 15 year old children and even for adults.

Some of the subjects included in the tests, for 11 year old children made by Dr. Sohan Lal, are as follows :

In the following example the word head has been italicised because the boy must have a head even if he does not have the other objects. The example goes thus :

Essential :

In the boy ...(Coat, shoe, bag, *head*, cycle, ball).

After seeing the above example, the subject has to underline the correct answer to some questions. Some examples of such sentences are :

33—In the forest ...(Lion, bear, snake, puddle, thorn, tree).
34—In the sea ...(Ship, aeroplane, water, traveller, fog, cold).
35—In the ice ...(blanket. sawdust, matting, dirt, fog, cold)

Of the subjects included in the tests for 13 years old children, some of the following five words are given in an example. One of these words which is in no way related to the remaining four is underlined. From this example, the examinee marks out words of a similar type. For example :

Corduroy, silk, *leather*, worsted, georgette.

The following are examples of questions given for solution—

1. Dog, cow, bull, hen, horse.
2. Temple, mosque, church, gurdwara, dharamshala.

From the above example, it is quite clear that these verbal group intelligence tests examine the reasoning power, power of comparing and contrasting, sense of direction, ability in numerals and language, of the individuals who constitute the group. It is essential that the examiner should be fully acquainted with the test and he should also understand the corresponding directions. Thus, often the examiner examines himself to start with. At the same time, it is necessary for the examiner to have some knowledge of the mechanical aspects of the conditions of examination such as the proper seating arrangement of the examinees, the distribution of test blanks, and the preparation of material related to the tests, like pencils etc.

Difficulties in the Verbal group intelligence tests

Even after taking all the precautions, some difficulties are discernible in the verbal group intelligence tests which can be eliminated only by reverting to the individual intelligence tests. It is due to these difficulties that the individual intelligence tests are considered more realistic than the group intelligence tests. The diffiiculties of the verbal group intelligence tests are fundamentally as follows—

(*1*) *Difficulties relating to co-operation in tests* : In these tests it is difficult to judge whether the examinee is extending his full co-operation or not.

(*2*) *Difficulty related to the balance of the subject* : In these tests it is difficult to determine whether the physical and emotional balance of the examinees is even or disturbed.

(*3*) *Difficulty related to the ease of the subject* : In the verbal group intelligence tests it is difficult to ascertain if the examinee is feeling at ease and free or restrained.

(*4*) *Possibility of cheating by the subject* : Another difficulty in these tests is that no one can testify whether the person has written the answer himself or copied it from his neighbour.

Inspite of the difficulties which arise in the verbal group intelligence tests, they have their own advantages due to which they are used comprehensively. As has been said before, the advantages are the same as the difficulties of the individual intelligence tests.

Non-verbal group Intelligence Tests

As has been mentioned before, the verbal intelligence tests are meant only for the literates because of the requirement of a linguistic ability. It is for this reason that the non-verbal group intelligence tests have been created, the examinee making a minimum use of language but performing, instead, many activities. One example of the non-verbal intelligence tests is Cattel's Culture free test and the N. I. I. P. test. An example of the subjects given in these tests is as follows :

In a given picture there are 3 squares with some vacant space for the fourth square. There are some figures drawn in the three squares. On the left various figures are shown in five squares. In the given diagram, the fourth square has to be filled with one such figure from the five squares that its relation to the third square must be the same as the relation which the figure in the first square bears to the figure in the second square.

In these non-verbal group intelligence tests, the examiners have to explain to the examinees even the simplest directions which are also demonstrated as far as possible. All this is done to make the least possible use of language. There are some performance tests in three group intelligence tests, in which the examinee draws some lines according to his abilities, fills in some empty spaces, draws some simple figures, or performs some simple activities. Some psychologists do not give credence to these non-verbal tests in their role of measuring intelligence of the subjects while on the other hand some psychologists consider them to be better than verbal tests. For example in Alexander's opinion, "A complete performance battery will be a better measure than a complete verbal battery."

The truth is that even if non-verbal group intelligence tests are not more important than verbal tests, they are certainly not less important than these tests. Some of their peculiarities are as follows :

Peculiarities of the Non Verbal Group Intelligence Tests

(*1*) *Comparison of various human groups* : The first obstacle in the comparision of human groups of various languages and cultures is the difference in their language. This obstacle can be overcome by the non-verbal group intelligence tests and a comparison between different human groups is rendered possible.

(2) The testing of illiterate soldiers—The verbal group intelligence tests are manifestly inapplicable to illiterate soldiers for the testing of their intelligence. Consequently the abilities of illiterate soldiers are assessed by employing the non-verbal group intelligence tests and the possibilities of their learning are known.

(*3*) *Intelligence testing in children*—The linguistic ability is very low in the case of children and consequently the verbal group intelligence tests cannot be given to them. Apparently, intelligence testing of children will have to be done by the non-verbal group intelligence tests.

(*4*) *Advice to some specific classes*—The above exposition on the non-verbal group intelligence tests has made it obvious that these tests have proved the most successful with some specific classes of people. Thus, the results of these tests render great assistance in advising people of this group.

◆

Q. 128. Write short notes on—

(a) Tests of Special Abilities, (b) Tests of Interests.

(*Banaras 1957*; *Rajasthan 1955*)

Define ability. Explain how abilities are measured ?

(*Karnatak 1965*)

(a) Tests of Special Abilities

In order to be able to direct someone in problems like, a particular job for a particular individual, the selection of subjects by a student, one must be aware of his abilities besides his intelligence because the special abilities have much importance in problems of life. Accordingly, attempts have been made to devise some tests for special abilities and at some places these tests are used with consummate ease.

Before describing in detail tests related to special abilities it is essential to know the age limit upto which these tests for special abilities can be carried into effect. This question arises because of the fact that the special abilities become distinguishable from each other. On the one hand Due holds the opinion that these special abilities gain distinction at the age of 11 while on the other Cyril Burt is of the opinion that this age is 13 years. Commonly, it is Due's opinion which is accredited. Consequently, educational guidance is tendered at the age of 11 years.

After having reached some conclusion as to the age at which these special abilities attain distinction, a question regarding their number still remains to be answered. Actually it is very difficult to enumerate these special abilities and there is no universally accepted opinion on this subject. Thurston and his followers have placed the number of basic mental specialities at seven. Thurston calls them primary mental abilities and these are— related to verbal expression, numerals, resoning or logic, memory etc. The Chicago Mental Abilities test has been prepared on the basis of these mental abilities. The Psychological Corporation of America uses another test battery based on these abilities. This battery has the following seven tests—

(b) Tests of Interests

1. Verbal Reasoning
2. Numerical Ability
3. Abstract Reasoning
4. Space Relation
5. Mechanical Reasoning
6. Clerical Speed and Accuracy
7. Language uses

A person's ability to do a particular job better than another depends not only on his intelligence but also upon his interest. In deciding the subject or curriculum which a student should take up we have to keep in view his interest as well as his intelligence and capacity. In this way, in guidance, be it educational or vocational, it is neccessary to find out things to his interests. Commonly people believe that in order to know a person's interests it is sufficient to ask him. People are often seen inquiring of the other's interest in some subject or some work but science cannot rest satisfied with this kind of verbal report. It endeavours to find out truth as accurately as possible. Consequently many tests have been evolved to measure interests and aptitudes.

The simplest and the most widely used test of interest is to inquire of the individual concerned. The subject or student is provided with a long list of occupations and he is asked to make a tic-mark front of the one in which he has interest. On seeing this list, the psychologist can find out the subject which interests the individual. In the lists of this type, the check list of occupations by Margaret E. Hoppock deserves mention.

Besides these tests, other such lists of interest and occupations are prepared which grant the opportunity of expressing some aspects of character as is the case with Strong's vocational interest Blank. Different blanks are made for male and female adults as well as for boys and girls. The complete blank is divided into eight parts, the order and description of which being as follows :

1. Occupation
2. Recreation
3. Subjects in School
4. Different activities
5. Peculiarities of Personality
6. Order of interest in work
7. Comparison of interest in two activities
8. Assessment of present

These blanks are meant to discover the potential successful person in a particular occupation whose interests are similar to those of the person filling the blanks. In this way Strong's inventory is based on a comparative study of the interests of different successful people in different occupations.

There is another type of list for the same purpose in which there is a description of the environment or atmosphere of the occupation as well as a description of the activities in each occupation and the real activities, and the individual specialities essential for them. An example of this is Dunlop's Academic Preference Record. The Vocational Preference Record of the psychological laboratory of Uttar Pradesh is included in this class. This list describes various interest areas, all the various occupations being described in 10 interest areas. The activities belonging to all these ten areas are mentioned and the examiner has to classify each one of them either as very likeable, casually interesting or as uninteresting. A profile of interests is made by adding up all the classifications of the activities according to which a person can be guided regarding his future occupation. This list of interests includes the following interest areas :

1. Outdoor work such as the work of plains, forests, markets, etc.
2. Mechanical work
3. Computational work
4. Scientific work
5. Persuasive work
6. Artistic work
7. Literary work
8. Musical work
9. Social service
10. Clerical work

The above described lists of interests do help in giving guidance but these lists have some limitations which should be better kept in view when these lists are used. These limitations are :

(*1*) *Difficulty in collecting descriptions of occupations* : As has been explained before a description of each occupation is appended to the tests of business or occupations but in reality it is extremely difficult to collect a complete description, meaning all the activities and essential abilities and interests. Leaving aside the psychologist, even people working in the occupations cannot give a detailed description of these occupations.

(*2*) *Doubt in the reliability of the answers* : The lists of interests do not examine the person regarding the different occupations, interest areas or works etc., but he is asked to give verbal report. Obviously the data is not completely scientific because the answers given by the subject are very doubtful. Besides, there is no way of knowing whether the response is true or false.

(*3*) *Changeability of Interest* : The interest lists collect knowledge related to interests but interest is no permanent or static quality of the person. Interests keep on changing due to which a person's capability of entering a particular occupation cannot be inferred from his interests at a particular time. It is quite possible that a person's ability may not be suited to a particular occupation but he may develop interest in it after entering it. And even otherwise a person's interests in some particular work are due to the opportunities to take up that type of work and also because he has come into contact with people who do that work. For example, how can a person have interest in reading novels unless he has ever read a novel ? The question of some person having an interest in reading novels arises only in the case of a person who has read a novel. As regards occupation it has often been observed that people started taking interest in a business they had entered upon inspite of the fact that they had no interest in it previously. On the other hand, some people who claimed having interest in some particular occupation, discovered, on being entrusted into the work, that they had no interest in it whatsoever. Thus, only the making of an interest list does not decide the occupation which the individual should enter upon. If at some given time a person has an interest suitable to a specific occupation, there is no guarantee that he will retain this interest in the future too. On the other hand, if a person does not show any interest in an occupation at the present time, it would be fallacious to conclude from it that even in future he would not take an interest in that occupation because interest is acquired and it is not innate. We do not have an interest in many things but we do acquire it. In the same way we do not retain our interest in many things. It is a common experience that a good teacher makes even the most difficult subject an interesting and entertaining one.

(4) *There is no essential relation in interest and success*—In vocational guidance, it is unscientific to foresee success in a particular occupation on the basis of these interest-lists. A person having interest in a particular occupation does not ascertain, by itself, a person's success in it. Most of the students of post graduate classes, for examples, take an interest in posts in the P.C.S. or I A.S. and take enthusiastic part in the competitions. Seeing the number of people successful and among these the number of people who make successful administrators, inspite of their interest, it becomes obvious that there is no invariable relation between interest and success, and no such relation can be relied upon. Success in an occupation depends on a person's ability rather than on his interest. Often an attitude of disinterestedness in a

particular occupation means a tendency to escape it, laziness, lack of enterprise and such like defects of character. For example, most of the boys who study in urban towns but come from rural areas do not like to take to farming, they run after white collar occupations in which they show interest. But does this prove that they are suited to white collar jobs or that they are unsuitable for agricultural jobs ? How can they have any interest in agriculture when they have made no effort to take an interest in it, when they want to avoid manual labour, when they like only the ostentatious atmosphere of the towns ? But any finding based upon this declaration of interests disclosing that they should not enter this profession or that they will be unsuccessful in it, will be incorrect.

(*5*) *Unscientific classification of professions*—Another major defect of these interest lists is the classification of professions which is thoroughly unscientific. Frankly speaking, no two occupations are alike. Every profession has its own specific activities, responsibilities and qualities of success, and such independent professions number hundreds if not thousands. And even if it is not impossible to compile a detailed list of all these occupations giving a detailed account of each, it is extremely difficult.

But the above description of the shortcomings of interest lists, is not intended to convey the impression that they are completely useless. Actually, interest by its very nature cannot be expected to form the basis of any dependable decision. As measures of temporary judgment the interest lists are of great importance but it is necessary to keep in view their limitations when they are used.

* * *

Q. 129. **Write a short note on—I. Q.**

(*Vikram 1963*; *Agra 1954*; *Karnatak 1964*)

Describe how intelligence is measured and individuals are qualified according to their I. Q. ? (*Poona 1954*)

How is I. Q. determined ? Do you think it remains constant ? Give reasons for your answer, (*Banaras 1965*)

Define I. Q. How is it determined ? Indicate its importance in educational guidance. (*Mysore 1962*)

Ans. The idea of I. Q. was utilised first of all in 1916 in the Stanford Binet tests. I. Q. is the ratio between mental age (MA)

What is I. Q. ?

and chronological age (CA). The chronological age is determined from the date of birth and the mental age by tests. For example, if the average score of children of 13 years in age turns out to be 75 in some tests then any child whose tests reveal an average of 75, will be said to have a mental age of 13, whatever be his chronological age. After 14 years of chronological age, mental age is not believed in. Even children of the same mental age may differ. Mental age does not increase with the chronological age. Having understood properly the mental age, it is easy to understand I. Q. The equation for the calculation of I. Q. is as follows :

$$\text{I. Q.} = \frac{MA}{CA} \times 100.$$

As is evident from the above equation, to calculate I. Q. (Intelligence Quotient) the mental age is divided by the chronological age and then multiplied by 100. To take an example, suppose a four years old child has a mental age of three years. His I. Q. will be calculated with the help of the following equation :

$$\tfrac{3}{4} \times 100 = 75.$$

The Limitation of the Concept of I. Q.

Actually, the I. Q. reveals the mental ability of the individual on the basis of which he can he directed about his future. It is essential to keep in sight the limitations of the idea of I. Q. in order to understand it well enough. It's main limitations are as follows :

1. I. Q. is not the quantity of a person's intelligence.

2. All the tests do not yield an identical I. Q. Consequently none of the I. Qs. indicated by any one test is completely reliable.

3. No person is devoid of intelligence so that I. Q. does not start from zero.

4. I. Q. changes at least once every three years.

Permanence of I. Q.

1. Even when a person is examined by the same test a number of times, the I. Q. shows a change. This difference differs from test to test. For example, in Wechsler Bellevue Test, the difference is upto 5 points whereas in the Stanford Binet tests it is upto 4 points.

2 . The I. Q. of every child does not remain constant. In ome it registers a very appreciable change.

3. I. Q. is the result both of heredity and environment. Thus a change in environment may change the I. Q. According- to Garret the good or bad environment may show a difference of 10 points.

Classification according to I. Q.

In his book 'Great Experiments in Psychology', Garret has classified people according to their I. Q. and shown their percentage in the population, as in the following table—

I. Q.	Classification	Percentage
140 or above	Very Superior	1.5
120 to 139	Superior	11
110 to 119	Bright	18
90 to 109	Average or Normal	48·0
80 to 89	Dull normal or Backward	14·0
70 to 78	Very dull	5·0
0 to 69	Feeble minded	2—5

In this context, some other important things known from experiments are :

1. There is a possibility of increase in I. Q. along with a rise in the social and economic status and a possibility of decrease in I. Q. with degradation.

2. The I. Q. generally remains constant from 5 years to 14 years of age.

3. The mental level develops gradually.

I. Q. and success in school work

Many scientific researches have made it clear that there is no invariable relation between I. Q. and success in school work. But in children with a higher I. Q. there is a possibility of success in school work.

* * *

Q. 130. **Show the relationship, if any, between the intelligence of children and the occupation of their father. Give reasons for such a relationship.** (*Agra 1957*)

Ans. It has been seen from different experiments, that some kind of relation between the father's occupation and childrens' I. Q. is to be observed. The I. Q. of children of fathers in a particular occupation was found to be higher than that of children whose fathers worked in some other spheres. The following table clarifies this relation—

Father's Occupation	I. Q. of the offspring
Rural or urban labourer	96
Semi-skilled	99
Ordinary clerk, shopkeeper	104
Clerk, merchant	107
Semi-employee, manager	111
Employee	116

This relation between father's occupation and the child's I. Q. can neither be attributed solely to heredity nor solely to environment. Actually, both these factors determine it People engaged in different occupations have different intelligence and the environment in their homes is different which affects the children. In this too, the environmental factor is the more important. Upon getting a superior environment the son of a labourer may also exhibit an I. Q. higher than that of the son of a businessman. In reality the experimental proofs available at present are inadequate to allow the acceptance of any definite relation between the father's occupation and the child's I. Q. though there is undoubtedly some relation between the two.

* * *

18

HEREDITY AND ENVIRONMENT

Q. 131. **Examine the relative importance of Heredity and Environment in human behaviour.** (*Poona 1960*)

Write a short note on—Heredity and Environment. (*Alld. 1959*)

What is Heredity ?

Ans. Heredity involves all those physiological and psychological peculiarities which a person inherits from his parents. These peculiarities are transmitted to us thorough the gene. In this way the children of white parents are fair while these of dark parents are generally dark. Negro children exhibit all physiological pecularities of their Negro parents. If one of the parents is fair while the other is dark, the child may be either fair or dark complexioned. It is heredity which determines the structure, colour of the skin, the hair structure, height, facial features, nasal index, cephalic index etc.

How does Heredity Work ?

Before there was any scientific investigation, it was believed that the effect of heredity arises from the mixing of the bloods of parents. But nearly one hundred years ago, a priest Mendal proved the fallacy of this theory by his experiments on the seeds of pea. Mendal's experiments and the investigations of other scientists proved that the effect of heredity is transferred from one generation to the next through the gene. By the intercourse between male and female, the sperm cell of the male meets the egg cell of the female and the child is conceived. These cells are made of protoplasm and they have chromosomes in their nucleus. There are genes inside these chromosomes. The heredity of the child through from these genes, determining his physiological and some psychological peculiarities. In human beings every physiological trait has a definite gene corresponding to it. This gene is never found single because both the parents contribute one gene each. Thus the person gets a pair of gene from his parents for every physiological sign. This is heredity. If these two gene are similar the child inherits that quality, but if the two are dissimilar it is the dominant of the two genes which gives its qualities to the child. Take an example. If both mother and father are not fair, and their genes are of a fair colour, the children too will be, in all probability, fair. If the gene of one of the parents is fair while that of the other is dark. the qualities that the child inherits will come from the more prominent of the two, though it is not inevitable that the child will be fair if the parents are both fair. The real importance is that of the genes. If a child of fair parents is dark, it means that one of the two was carrying a dark gene from his previous generations which became dominant at that time. Sometimes one gene lies dormant for generations but flares up or becomes extremely active in one generation. Sometimes there is a change in the power of transmission of the gene. This mutation causes a sudden change in the gene. No one gene can however, produce some physiological sign by staying away from the other genes. In reality different genes create a condition in which all the physiological signs are determined for the child.

Controversy between Heredity and Environment

Scholars are not unanimous about the relation between heredity and environment. Some psychologists opine that all physiological and psychological characteristics of the individual find their determinant in heredity. Galton, the eminent author of 'Hereditary Genius', says that genius is an innate quality immune to the environment. On the other, some psychologists think that environment alone is responsible for moulding the character of a person saying that heredity does not in any way effect the individual. Dr. Watson said "Give me a child and I will make him anything." Thus the supportes of heredity and those of environment have been engaged in an extreme controversy.

Relation between Heredity and Environment

In reality, both heredity and environment are important. MacIver and Page have said very corectly, "Every phenomena of life is the product of both. Each determines the character of the individual. Neither can ever be isolated." Experiments relating to heredity have proved that it is not the sole factor which determines the development of the personality of human beings. And similarly, experiments conducted in the field of environment also indicate that it is not the only factor influencing personality. In Altenberg's words "Each trait requires both heredity and environment for its development."

Heredity and Environment are Complementry

Actually heredity and environment are the two aspects of the same element. Davis writes, and very correctly, "Terms like heridity or 'environment' do not refer to anything tangible but to an abstraction." In relation to human development, heredity cannot be imagined apart from environment and neither can environment be imagined apart from heredity. Lysenco has taken an example from nature to explain it. Only wheat will sprout from a seed of wheat and the same applies to mustard. But when the farmer decides to sow wheat he has in mind all those things which he needs to make that seed sprout and the extent to which he can lay his hands on them. Obviously, the sprouting of the wheat seed and its development depends on both environment and heredity. David Abrahamson wrote: "What the individual can do is decided by heredity and what he does is determined by the environment." The energies of the individual are in the heredity but it is upto the environment to extract these energies. Lumley has beautifully described this relation between heredity and environment. He wrote "It is not heredity or environment, but heredity and environment."

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Q. 132. **Does heredity have the same significance for physical appearance, intelligence and personality? Give reasons for your opinion.** (*Agra 1951*)

Explain the comparative importance of Heredity and Environment in causing individual difference in intelligence.

(*Nagpur 1953*)

Show the influence of heredity and environment on the intellectual and physiological development. (*Gujrat 1964*)

Ans. To study the effects of heredity on physical appearances, children of many varied races were compared with their parents.

Effect of Heredity on Physiological Appearance

From these experiments it was concluded that it is heredity which determines physical appearance. But other scientists pointed out that the effects of food and environment are by no means negligible. Franz Boas collected examples in which Japanese and Jews residing in U. S. A. had increased in height and the shapes of their heads had also changed.

Effects of Heredity on Intelligence

Having experimented upon Negroes and white soldiers in connection with their intelligence, Yerkes concluded that due to heredity, there is a difference of intelligence between the two. Clark experimented in New York and Los Angeles and contradicted Yerkes in his conclusion that the difference in intelligence between Negroes and the Whites is insubstantial. In an imposing school in New York 10% of the selected 500 students were Negroes, equivalent numerically to the ratio of the Negro population of New York. Besides this, a 9 year old Negro girl registered an intelligence quotient of 200, twice the intelligence of a normal child. Even among the Negroes Klineberg found a disparity between those of the North and those of the South, the former being the more intelligent because of better developed education and environment. Then, again, scientists have pointed out that the Negroes are always at a disadvantage in these tests designed specifically for the Whites. Intelligence tests developed for one group do not suit other groups.

J. Mackeen Cattell, in his book '*American men of Science*' wrote that if the generations of 885 American scientists are studied it is seen that 1/5th of them come from the trade-people, another 1/5th from the agriculturists, not withstanding the fact that the agriculturists comprise 40% of the population while the handful of tradespeople represent only 3% of the population. From this study, attempts have been made to prove that due to the effects of heredity, some specific groups or classes show a greater propensity or ability for trade, than those belonging to other groups. But Cooley, in his essay '*Genius, Fame and Comprasion of Races*' disproved this opinion by recounting the examples of 71 scientists of Europe.

It is indisputable that heredity determines the difference of sex and it is on this basis that some scientists contend that heredity

Importance of Heredity for Personality

determines personality because it is the difference of sex which determines the personality of men and women. People, in general, believe in a fundamental difference in the personality of men and women due to the difference in sex. Thus the qualities of patience and emotions are attributed to a women and she is called the very picture of love and affection. It is generally believed that their main function is to give birth, to look after their offspring and to work in the house. Every literature hold such typical thoughts that woman is like a creeper which lives entwined about man. Her personality is considerably influenced by man's personality. On the other hand, man by nature is hard, persistent, intelligent independent and self-supporter. While women take an interest in art and literature, men take an interest in science, mathematics and war and other difficult works.

Effect of sex Difference

The popular thought, which attributes difference in the personalities of male and female to the difference in sex is not borne out by facts. One can find among women those who are dangerous criminals, fighters, scientists, mathematicians, politicians. History contains evidence to show that when occasion arose the women did not lag behind the men in any field. Some famous examples such as John of Arc, Madame Curie, Rani Lakshmi Bai etc., support this view. To some extent it is possible to assert that fundamental differences in the personality of man and woman are not due to the difference in sex. This can be proved by conducting experiments in controlled environments. But most of information collected on this subject comes from the researches of the anthropologists and it has been proved that in varied cultures men and women develop varying personalities and the difference in sex plays very insignificant role. The famous anthropologist, Margaret Mead studied the cultures of Arapesh, Mundgumor and Tchambuli, three native tribes of New Guinea. In the Arapesh tribe no difference in the personality of males and females was discernible, both being equally co-operative and efficient. Men and women in the Mundgumor tribe were equally ruthless and aggressive. In the Tchambuli tribe there was an unmistakable difference between the two. Margaret Mead concluded from this that the development in personality depends upon the culture, not excluding the effect which sex has on the personality of an individual. It is universally accepted that the physiological structure, too has a significant effect upon personality. The physical energies of man and woman are not the same. When compared to man the average weight and height of a woman is less. Her body is naturally adapted to reproduction and the care of her offspring. Her body is more delicate than that of man and due to the physiological difference in sex, they occupy different places in society and consequently the difference in their personality is quite natural. The extent of difference in the personality of individuals however, varies with the variation in culture. Thus the extent to which difference in sex affects personality is governed both by heredity and environment. Landis and Landis correctly said, "Heredity explains man the animal, environment man the human being."

Temperament

Besides difference in sex, difference in temperament is also an important part of personality. The nature of an individual depends very much on the environment. Temperament develops according to the environment in which the child grows. Thus the difference in environment affects temperament. Family relations, society circle of friendship and working conditions all have an affect upon the temperament of an individual. In poverty, temperament becomes hard, irritable, over bearing etc. Even though it may not be accepted as a law, no man of experience will deny that the financial status, occupation, nature of life partner and living conditions all have a profound effect on temperament and all these collectively constitute the environment. But the effect of heredity on temperament is more profound than the effect of environment. Temperament depends, to a large extent, upon internal drives which are deeply effected by endocrine glands. In modern times, extensive research has been carried out to find out the effect of endocrine glands on temperament and some scientists have gone to the extent of saying that glands determine personality. People have been classified on the basis of the effects of glands. Scientific discoveries have proved beyond dispute that the effects on temperament once attributed to the environment are actually the effects of glands. The change which occurs in the temperament of boys and girls caused by the increased activity of the sex glands with the coming of youth is inevitable. Besides as the secretion of the Thyroid increases, an individual becomes restless and active and if it decreases he becomes slow and lazy. If the Parathyroid secretes more a person remains calm but he becomes excited with every fall in the secretion. Research on the effects of the glands located in various parts of the body is in progress. Attempts are being made to bring about artificial increase or decrease in the glandular secretions. Undoubtedly many ways of improving human personality will be evolved but to conclude from this, that temperament is determind by glandular secretions or that heredity determines everything in the subject, would be completely one sided. These secretions have tremendous but unperceived effect. A big change in these secretions is effected by cultural and social environments. For example, the mental disturbance through which adolescents in our civilization pass when they attain youth is absent in many tribes because in those tribes there are no restrictions upon sex relations. Obviously, the change is not exclusively due to the activity of sex glands, but is also due to social customs. Heredity then does not mould the personality. The above description of the effects of heredity on personality can be beautifully summed up in the words of Biesanz and Biesanz, "Personality is the organisation of a person's habits, attitudes and traits and arises from the interplay of biological, social and cultural factors."

The above exposition about of effects of heredity upon physical appearance, intelligence and personality makes it quite obvious that its effects are not similar and equal in all cases. We know from experiences that heredity has its most pronounced effect upon physical appearance somewhat less on intelligence and least of all upon personality. This conclusion is supported by scientific researches.

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Q. 133. **Sketch with suitable illustrations the interaction of the individual and the environment.** (*Madras 1962*)

Discuss the interrelation between man and his environment. (*Lucknow 1953*)

Ans. Environment has a very significant effect on man. Its effect starts from his birth and continues almost till his very death.

Effect of the Environment

The status of the child, youth and old man in the family and society is not the same and as a result of this difference a man's personality, roles, temperaments, ways of thinking, tendencies, inclinations and character is affected. In the same way, the status of the person in places like school, office, occupation, etc., effects his role to a great extent.

Environment can be roughly divided into two parts—Controlled and Uncontrolled environment and social and geographical environment. In both the social and geographical environments of man, a part of them is controlled and the other part is not controlled. Both these types of social and geographical environments have a profound effect upon the individual.

Effect of Social Environment

The various aspects of society like the family, school, occupation, social customs, primitive concepts, all affect the individual. In this context one example from family life will suffice. In the opinion of the famous psychoanalyst Sigmund Freud the personality of a person is fashioned in the first seven years, the rest of the life being an expression of those tendencies. Whether all thinkers agree with Freud's opinion or not, all have agreed with regard to the effect of the environment on the family upon the character, nature, mental tendencies, habits, behaviour of the individual, and there are enough existing causes which justify our denial of the full knowledge of the effects of the family upon the individual. This special knowledge can be gained by comparing children brought up in families and those bred in government institutions. Havelock Ellis in his *"The Problem of Race Regeneration"* wrote, "The advantages of a mother suckling her baby are more than merely physical, it is a stimulus to her affection for her child and a guarantee that the child will receive in other respects the loving care it needs." In childhood, parental love affects the stability of the emotions of the child. It is inevitable that excessive love and care spoils the children and lack of affection leaves their feelings undeveloped, which are then unnaturally expressed. The famous psychologist Alfred Adler said that even the birth order of the child in the family effects its personality. This may be expressed or clarified better thus—in the family mother father, husband wife, elder brother, younger brother, elder sister, younger sister, beloved child, unwanted offspring all have their respective, dissimilar status in the family which effects their personality.

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Q. 134. **Write a short note on—Heredity.** (*Poona 1959*)

Ans. What is heredity ? It is, in a minute seed form all that a child receives from his parents. The child is born by the combining of two genes of the mother and father. But this seed does not sprout similarly under all conditions. The farmer ploughs the field and sows the seeds in it. The seed which lands on the stone does not sprout while the one which lands on hard land does so with difficulty. The seed away from water sprouts but does not grow because it dries up due to lack of water. If the farmer fails to look after the crops, wild animals and birds would destory it. The absence of fertilizers would restrict the proper growth of plants. Thus, the mere planting of wheat will not allow one to reap it. It is essential that the crop be given manure, water etc., at the proper time and it be protected from animals.

The same principle holds true with human beings. Admitted that the child is born with many physiological and mental qualities in a seed form but do these qualities develop similarly under any and all conditions ? Two twin children have identical heredity, but W. E. Blatz in his book "*Collected studies on the Dionne Quintuplets*" proved very clearly th.t even identical twins develop differences. Newman, Freeman and Holzinger bred 19 identical twins in dissimilar environments and the studies revealed very slight physiological dissimilarities but very marked differences in the peculiarities of personality. Obviously change in environment changes the effects of heredity. Thus even if the most intelligent child is placed in a bad environment, the growth and development of his genius will become limited and on the other hand, the qualities of an average child can be developed to their maximum by placing him in good and helpful environments.

But does this mean that the seed has no importance ? Can the mere change in environment make anybody just anything ? If a seed of cactus is sown mangoes cannot be had. Environment develops the qualities received from heredity but only to some extent.

In brief, it can be said that heredity is a seed, the environment are conditions for its developments. The development of inherited qualities will be according to the environment.

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19

PERSONALITY

Q. 136. **What is meant by personality ? What are the factors which determine it ?**

(*Bombay 1964, 59, 58, 52*; *Karnatak 1965; Punjab 1962*)

Define personality. What are the various conditions which determine personality. (*Bombay 1959*; *Baroda 1963*)

Give a brief exposition of general factors in personality.

(*Madras 1962*; *Poona 1954*)

Write short note on personality. (*Karnatak 1953*; *52*)

Write short note on factors of personality. (*Bombay 1959*)

Discuss the social and physical factors that contribute to the development of human personality. (*Karnatak 1964*)

Ans. Ordinarily, personality is taken as the external appearance of the individual. In philosophy the meaning of personality has been interpreted in the sense of the internal self. But in psychology neither is the personality the external appearance nor is it the internal self, but it includes both and much more. The word personality has been derived from the Latin word Persona. The word Persona was used for the cover, utilised by the actors to change their appearance, but in the Roman times it was taken as the particular character itself. This second meaning has been taken in the modern word personality. Thus personality is not a fixed state but a dynamic totality which is continuously changing due to interaction with the environment. Personality is known by the conduct, behaviour, activities, movements and everything else concerning the individual. It is the way of responding to the environment. The way in which an individual adjusts with the external environment, is personality. In the words of Munn, "Personality may be defined as the most characteristic integration of an individual's structure, modes, behaviour, interests, attitudes, capacities, abilities and aptitudes." Behaviour requires integration. This integration of various traits is found differently in different person. As a general rule every healthy individual has some sort of integration. The peculiar forms of integration in a particular individual are his personality traits. Thus personality is the most characteristic integration of an individual. It is personality which marks distinction in one man and another. In the words of Gordon Allport, "Personality is the dynamic organisation within the individual of those psycho-physical systems that determine his unique adjustment to his environment." The personality is the organisation of the internal and external activities. It includes the external appearance, qualities, aptitudes and capacities etc. It is the result of the inter-action of the individual with the environment. It is not a collection of the traits, but a particular organisation of them. It is the total quality of the individual's behaviour. Individual affects other individuals through his personality. Thus personality is manifested in his various activities. In short, personality is the total quality of the behaviour, attitudes, interests, capacities, aptitudes, and behaviour patterns, which are manifested in his relation with the environment.

For some time there was discussion among the psychologists about the relation of heredity and environment in the development of personality. In this discussion arguments were given from both sides and much matter was gathered on the basis of observation and experimentation. It was found by this data that the development of personality depends upon both the heredity and the environment. Hence modern psychology includes both heredity and environment in the factors influencing personality.

According to Gordon Allport only the relatively stable aspects of behaviour should be recognised as personality traits. In his book, "*Personality a psychological interpretation*," Allport writes, "From the evidence now in hand, four important conclusions may be drawn:

(1) personality, defined as the distinctive mode of adjustment adopted by each individual in his efforts to live, is not formed at birth, but it may be said to have begun at birth.

(2) The earliest distinctive adjustment in respect to which infants can be said to differ, are in the intensity and frequency of their spontaneous activity (mobility) and in their emotional expression (temperament). Both these factors are primarly products of inheritance.

(3) Probably not before the fourth month is there sufficient learning and maturation to form distinctive habits of adjustment or rudimentry traits. But by the second half of the first year, adoptive response to the physical environment and to behaviour so marks distinctiveness.

(4) Distinctive qualities noted early in life tend to persist. The child seems pre-disposed to learn certain modes of adjustment and reject others. Even before these adoptive forms are clearly defined an observer can often, by the method of 'prophecy' predict later traits. Irrespective of the method used in the study of the consistency of early development, the evidence is positive, virtually in every case." Thus heredity influences the biological features of personality. As a matter of fact, the heredity does not determine personality completely, nor is it ineffective in it.

See Next two Qs. and Ans.

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Q. 135. **Discuss fully the biological determinants of personality.** (*Patna 1962*; *Alld. 1956; Raj. 1964*; *Agra 1954*; *Muzaffarpur 1965*)

Factors affecting Personality

The factors affecting personality can be divided into two classes—(1) Biological and (2) Social. The biological factors affecting the development of personality are of three types: (1) Ductless Glands (2) Physique and (3) Nervous System.

Endocrine Glands

Ductless glands send their secretions directly to the blood without ducts. Their secretions are called hormones. These hormones are responsible for many changes in the personality. Different glands secrete one or more type of hormones. A description of the effect of some of the ductless glands will show the extent to which personality is influenced by them.

(1) Pancreas—Pancreas send insulin to the blood. The amount of sugar in the blood depends upon the amount of insulin in it. When the deficiency of insulin *i. e.* sugar, is in the body the mental powers are weakened and the personality of the individual seems less balanced. His mood is changed, temperament becomes irritated and fear increases.

(*2*) *Thyroid Gland*—Thyroid gland has a very important function in the development of physical structures as well as mental development. If it is absent since the very birth the intellect of the child does not improve. Cretins, imbeciles etc., are the result of the absence of thyroid gland. Its destruction causes a disease known as myxoedema. This disease creates laziness in man. The activities of the mind as well as those of muscles are slackened. The memory becomes weak, man is not easily concentrated and thinking becomes difficult. In the period of development the excess of the activity of thyroid results in rapid physical growth, specially the development of height. An excessive activity of this gland results in rapid physical growth, specially the development of height. An excessive activity of this gland results in tension, irritation, worry and instablity in man's personality. Thus with the increase or deficiency in the activity of thyroid gland, the activity of the body as well as of the mind also increases and decreases. But this does not mean that the increase and decrease of the activity in the body is always due to the effect of thyroid gland. Occasionally, it might be due to other causes as well, but thyroid gland does play an important part in them.

(*3*) *Adrenal Gland*—Adrenal gland secrets adrenaline. Adrenaline has an important influence upon personality. Its excess creates the sexual traits in men or women. Its excess in women is responsible for the absence of the rounded contours and feminine voice. It organises the organic capacities in the time of emergency. The excess of adrenaline causes rapid heart-beat, high blood pressure and the postponement of the activity of the intestines. The individual having less adrenaline feels relaxation in the muscles, more sweat and the pupils of the eye are extended. An entire absence of adrenaline, results in the disease known as Addison s disease. In this disease one feels weakness and lethargy in the body, power of resisting disease is lessened, the interest in sex activity disappears and metabolism becomes slow. The skin becomes black, the power of resisting heat and cold is lessened and behaviour becomes irritable.

(*4*) *Gonads*—The secretion of the gonads *i. e.*, sex glands, is an important factor influencing personality. Gonads separate sex hormones. Sex hormones are very much helpful in the increase of sex interest. In adolescence there is a special increment in the hormones. Hence changes are observed in the individuals according to their sex. In man one finds the manifestation of manual characteristics such as beard, moustaches, high pitch in voice etc., while in the female there is development of mammary glands and other womanly traits. The processes concerning pregnancy *e. g.* mensus, pregnancy, the bearing of the child and maternal behaviour is very much influenced by the sex hormones.

5. *Pituitary Glands*—The hormones secreted by the pituitary glands control other glands. The hormones secreted by the front part of the pituitary gland increase the activity of other glands as well. The hormones created by the back part of the pituitary glands control the blood pressure and the metabolism of water in the physical activities. These hormones also effect physical growth. In the time of physical growth the bones and muscles of the individual grow speedily due to the activity of these glands. In its excess, the height can go even upto 7 to 9 feet. But because after excessive activity this gland becomes very much inactive, these very tall persons die at an early age. If the activity of the pituitary gland is very much deficient in the time of development, individual remains a midget, though his intellect is normal and the physical structure is not un-attractive. If the activity of this gland is normal during the developmental period and becomes excessive afterwards, the hands, feet, nose and lower jaw etc., become broad. This state is known as acromegaly.

The effect of the hormones is influenced by the heredity as well as by the environmental factors. But still the excess or deficiency in their activity create some changes quite apparent in the personality of the individual. It is not necessary that the excess of the secretion of any one of the particular gland should always show some special influence in the body *e. g.*, the excess of sex tendency should not always be supposed as due to the excess of the secretion of the sex gland, since different glands also interact upon each other due to which the activity of some is increased while that of others is decreased. The sex behaviour, for example, is very much influenced by social norms, customs, circumstances, habits and many other things. Hence, inspite of the deficiency of the sex hormones, the individual may appear to be very much interested in sex activities. On the other hand, inspite of excess of the sex hormones, the individual may not appear to be interested in sexual activities.

Physique

Another important biological factor affecting personality is physical structure. It is seen in daily life that often the fat men are easy going and social, while the thin persons are self-controlled, irritated and un-social. Thus the physical structure has some relation with the temperament. But even the instances contrary to this rule are also existing. As a matter of fact the relation of physical structure and the temperament has not been definitely established. More experiments are required in this direction. The experiments conducted so far have been mostly on college students. Before one arrives at some definite conclusion, experiments must be conducted on adult person as well. But even after that, the problem of the basis of co-relation remains un-answered. Simply by co-relation the temperament cannot be taken as a result of physical structure. It should also be remembered in this context that the physical structure makes a difference in other's behaviour towards a particular person. It is observed that our behaviour towards different individuals is modified, to some extent, according to their physical structure. This difference in our behaviour makes a change in their personality. Hence, a particular difference should not be supposed due to physical structure alone but also due to other's behaviour towards the particular person, though the former may be more important.

Body Chemistry

Another important biological factor effecting personality is body chemistry. In ancient times, the differences of temperament were supposed to be due to difference of chemical elements in different men. Thus the nervous personality was taken as the result of excess of nervous fluid. It was supposed that the sanguine persons have an excess of blood, the choleric persons an excess of bile, phlegmatic persons an excess of phlegam and the melancholic persons, an excess of spleen. This principle is not accepted in modern psychology, but still no psychologist denies the relation of personality with the proportion of chemical elements in the body. These chemical elements are of two types. Some reach the body from outside while some are created in the body itself. Thus the drugs have sufficient effect on personality. The behaviour of the dru - kard is an example of such effect. Different types of intoxicating drugs have a clear influence upon the personality of the individual. The deficiency of different vitamins also causes some change in the personality. With the increase or decrease of the quantity of sugar in the body, the physical and mental state of the man is very much changed. In convalescence one finds a difference in the individual's personality. Difference is also noticed after long illness.

Besides the above-mentioned biological factors many other factors influence personality, *e. g.*, sex, intelligence, intellect and nervous system etc. The differnce in the sex of male and female creates an essential difference in their personality, though it has been established that much of this difference is caused by social and cultural environment. Galton and Goddard believe that intellect is absolutely hereditary. The modern psychologists do not agree with this hereditary view though the influence of heredity is not denied. The enivironment effects intellect, but the development of intellect is ultimately limited. The influence of special talents, as that of music, mathematics etc., on human personality is very well known. Like the intellect, the talents are also generally hereditary. According to Kempf, the author of *The autonomic function and personality,* the nervous system is one of the important determinants of personality.

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Q. 136. **Bring out the contribution of social factors to the development of personality.** (*Gorakhpur 1962*; *Banaras 1965*)

Explain the role of family and school situations in the development of personality. (*Mysore 1962*)

Social Factors Influencing Personality

The environments of different individuals are very much different from one another and so also their effects, but the influence of environment on personality can roughly be divided into that of home, school and society. All these three play an important part in the development of personality.

Influence of Home on Personality

The environment of the home has a wide influence on the development of personality. This influence, as a general rule, is according to the patterns found in a particular culture. In the family the relation of child with the parents is the most intimate. The cultural development of the child is very much iufluenced by the behaviour of the parents, *e. g.*, a child brought up in Indian family will by very much different in his behaviour than another brought up in Western culture. But even in the same culture much difference can be observed in the parent-child relationship in different families, *e. g.*, generally the child has a respectable place in Indian family, but all Indian parents do not sufficiently love and sympathise with the child. In such circumstances much repression is observed in child's behaviour. He becomes an introvert and often enjoys in his dreams, day dreams and imaginations things which are denied to him by his parents. The influence of the presence of the parental love is again not the same in the case of all children. A child may become aggressive while another may become submissive in the same circumstances. On the other hand, if the parents show excessive affection towards the child, the child may become an extremist and excessively dependant upon the parents. A child excessively ignored shows different types of conflicts in his personality. Children brought in the psychological clinics for the cure of defects of personality showed that an important cause of their defects was the behaviour of their parents towards them. According to Sigmund Freud, the tendency to depend upon the parents in the childhood is manifested in the tendency to depend upon the leader in the adult age. If the child is allowed freedom in the matters concerning his belongings food, clothes, books etc., he will develop a habit of freewill, if all these are decided by his parents he will not get an opportunity to utilise his judgement and so become over-dependent or submissive.

Parents are more powerful and efficient than the child. Hence they are the ideals before him. The child wants to become like his parents. Thus he establishes his identification with either of the parent and tries to follow his manners, ways and behaviour. The child also fulfils his frustrated desires through this indentification. It has been observed that the little boy wears the big shirt of the father and walks proudly like him with a stick in his hand. This identification with the parents in the childhood is later on converted into the identification of the individual with the leader. By the identification with the leader the individual is happy in the leader's achievements and sorry in his failures.

In the absence of affection and sympathy, the child often turns criminal. While discussing the causes of criminal tendencies, Healy and Bronner have emphasized three factors, the effort to get rid of the painful circumstances, the tendency to revenge for the mis-behaviour of the father, the efforts to satisfy the frustrating desires. Often the child has the curiosity as to where from the younger brother or sister has come. The answer to this question by the parents has an important effect on his personality. The child has a natural curiosity towards the sex tendency. Often the parents try to suppress his curiosity towards sex or they just rebuke when he asks such questions. But the child is not silenced by this. He tries to enquire from the servants or friends in the house. But this leads to guilt conscience. The reactions in the parents about the every day matters in the family also effect the personality of the child. The relation of the mother and father among themselves also effect the personality of the child. In short, every behaviour of mother or father and the circumstances in family effect the personality of the child more or less.

It has been observed that the behaviour of the eldest and the youngest, the elder or the younger is not the same in the family. Similarly it has been found that the parents' behaviour towards them is not also the same. This has led the psychologist Alfred Adler, to emphasize the importance of birth order in the development of personality. The birth order of the child fixes the status in the family which decides his roles which affect his personality. The youngest child is treated with affection by everyone, hence he becomes over-dependent. The eldest child becomes self-sufficient and tyrant, because being the only child for some time he does not share his rights and things with others. The birth of another child in the family has an important influence on the first child, since it takes away his monopoly in affection and sometimes he is neglected altogether. Hence he feels jealous with the younger child and tries to re-gain his rights. On the other hand, the new child is anxious to make his place in his family. The above description of the child's problems based upon the conception of birth order has been conclusively proved. The researchers have found similar conflicts in different birth orders. Adler has truly said that the individual develops his style of life from the pattern of his early lifein the family, but there are no grounds to suppose that this style of life remains un-changed in future. It cannot be denied that the environment in the childhood is one of the most important factors determining personality, but it is difficult to believe with Freud and Adler that the personality of an individual is completely determined in childhood.

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Q. 137. **Discuss fully the different stages in the development of personality.** *(Lucknow 1958)*

Ans. The different conditions of infancy, adolescence, youth and old age are very clearly depicted in the psysiological development of the man The speed and direction of physiological development differs from one stage to another. In the different stages of the development of personality, different changes are visible in the personality of the individual. In some stages these changes are faster and more comprehensive while in other stages the change is comparatively less. This change shows a change in the personality too.

Freud and many other psychologists give much importance to infancy in an individual's life. Some psychologists have claimed the development of personality to start during pregnancy. In Rank's view the development of personality starts in the mother's womb. This opinion says further that the very activity of its conception effects the child's personality, the presence or absence of difficulties in it making a difference in the personality. But it has not been possible to prove that theory by experimentation. In Freud's opinion, whatever incidents take place in the first three years of a child's life permanently mould his character the rest being a mere development of these peculiarities, suckling, weaning, loving fondling, scolding, beating, toilet training etc., all effect the child's personality. The love and affection of the parents has a very significant effect upon the child. Excessive love and affection make a child stubborn and inconsistent. Lack of affection stunts the development of his emotions while proper love gives him emotional stability.

1. The first six years

Besides love and affection, suckling also impresses the personality of the child. Experiments indicate that even when the child is not hungry, he does not want to release the breasts. Actually, suckling is not merely a mode of satisfying hunger but also a symbol of the mother's love for the child and consequently weaning also affects the child's personality because it sometimes expresses the indifference of the mother directed at the child. If the child is suckled for a long time he becomes dependant and comfortable. Early weaning may lead to the development of tendencies of pessimism and morbidity. An interesting experiment was carried out on college students

Effects of weaning

in this context. They asked their mothers about the age at which weaning had been carried out, and they were subsequently tested for their feelings of security or insecurity. This experiment indicated an important correlation between weaning and the feelings of security and insecurity. Those who had been weaned at an age of 6 to 9 month scored less points in security then those suckled for over 9 months, but those who had not been suckled at all or only for about three months, showed no sense of insecurity whatsoever. This strange result was seen in the light of the fact that in the cultural group from among which these students had been chosen, the cause of weaning was not the desire but the inability to continue suckling. This study indicates that the weaning does not have as great an effect as indifference on the part of the mother. The effect of weaning which is felt is the effect of the mother's indifference. In the first six years, the child learns the adjustment of his needs with the environment. His relations with his mother during this adjustment leave a permanent mark on the development of his personality. The development of a feeling of insecurity at this age leads to mental conflict making a child frightened and depressed and aggressive and naughty. Even toilet training effects the child. If, in the teaching of cleanliness, of which parents and other members partake, excess hardness and resolution are applied, the child may develop many compulsions. The birth order, and the birth of a new infant, all have an effect on the child. The relation of the parents among themselves, the social and financial status of the family, both leave an indelible mark on his personality. The outlook and reaction of the family members towards the sexual tendencies also tend to effect the child's personality. Unnecessary fear develops a criminal tendency in the child. The intelligent satisfaction of his curiosity has a good effect on his development.

Qualities of personality in a child

Qualities of personality become apparent at a very early age of the child. The differences of will power, friendliness, determination and impressing others etc., between children appear at the ages of two or three. By the time a child is five he starts expressing competitiveness. It has been seen from experiments that qualities or traits like mobile adjustment, self dependance, love for the family, humour, emotional adjustment and reaction to resistance etc., of the personality appear at the age of one and stay permanent even after adolescence. But some qualities show some change. Actually, there is a lot of truth in the fact that the foundation of the peculiarities in the personality of a person are laid in childhood.

2. Pre-Pubertal childhood

The second stage in the development of human personality continues till the on coming of puberty and it is accordingly entitled the pre-pubertal childhood. At this stage, the conditions of the school start effecting the development of his personality because commonly, by now, he has started attending school and playing with the other children. The child is given a particular place in the family, whereas he has to acquire for himself a position among his colleagues. He thus learns the lesson of equality and justice. His mother does not afford him security in the school, whereby he learns the qualities of independance and self dependance, and these changes are also felt in the family. The child enters his own age group and acquires a role according to his personality, and by living in a group learns the patterns of his future grown up life. It is at this stage that he learns leadership, friendship, sympathy and social adaptation. His success or failure in the group develops many good and bad qualities in the child. A child extremely dependant on some one member of the family has difficulty in adjusting to the group, a state which generally results in the origination of a feeling of inferiority. The practices which he adopts are the ones which have brought him success in his attempts at the adjustment within his group. If obstinacy and self-assertion or aggression are more advantageous he will develop them and if escape is more successful the child will become an escapist.

3. Puberty and Adolescence

The next stage in the development of human personality is the stage of puberty and adolescence. Puberty is a physiological condition, in which the maturation of sexual activities takes place. It is the link between childhood and adulthood. Adolescence as a psychological state is generally characterised by extensive disturbance.

Puberty does effect personality. After puberty, the interest in sexual activities becomes specific and developed. Many studies have

Effect of Puberty on Personality

made it known that the social behaviour of girls and boys registers a maturation after puberty. This may be caused by an awareness of the physiological condition in puberty leading to a feeling of adulthood. In this stage the boys and girls went to identify themselves with adulthood, their interests becoming adult. Immediately before puberty, there is extensive physiological develoment and immediately after it the boys and girls start exhibiting the respective physical signs of their sexes. The girls start having menstrual cycles and their organs acquire rounded contours. Boys grow beards and moustaches and their voices become heavy. In this stage mental development, too, is maximum. Puberty takes place two years earlier in girls then the boys, this being the reason for their earlier exhibition of pubertal changes.

Effect of Adolescence on personality

The psychological state of adolescence effects personality in no small measure. The girls and boys start taking an interest in persons of the opposite sex. They also experience an increase in the feeling of independence. The adjustment of adolesence is a problem which differs with culture. The disturbance of an adolescent in civilised societies is not found in the people of Samoa. In their society unlike the civilised societies, there are restrictions on sexual behaviour and the individual becomes self dependent at an early age. The disturbance of the adolescent stage is due to those mental conflicts through which a civilised person has to pass. These conflicts arise from many social problems like independence from the parents, sexual adjustment, self-dependence, choice of profession etc. In this age, if the parents still look on the youth as a child, he will either make a strong revolt against is or submit to it, the latter course leading to a stop in the development of his personality. The indifference to sex education makes these adolescent problems even more intricate. In India, there is more sex education and less sex restrictions in primitive tribes than there is in the Hindu Society. Thus the transition from adolescence to adulthood is easier for the tribal youths than the Hindu youths. Absence of the means of satisfying sexual curiosities and a social feeling of evil related to them increase the guilt conscience and anxiety of the adolescent, and this does not allow the proper development of his personality. It is a baseless idea that the person becomes entirely new during adolescence or that there is a complete reorganisation of his entire personality. Adolescence is a stage in the development of personality and development is a continuous process in which infancy effects adolescence and adolescence effects adulthood.

Adulthood and After

The fourth stage, following adolescence in the development of personality is adulthood. Many experiments or researches have revealed that equilibrium is at a low ebb in the beginning of adulthood and just before old age, between them there being comparatively better adjustment. After adolescence upon entering adulthood a person adopts some permanent occupation, gets married and develops a family. All these three tasks demand extensive adjustment and a lot of change is brought in the personality. After this, till old age, not much change is needed. This static stage develops a dogmatic forbearing and social outlook. This outline of general develoment is not found essentially in all. Actually it depends on the adjustments of the adult age, one of the problems being economic adjustment. Getting a lower post than anticipated, long periods of unemployment, getting an uninteresting occupation, freedom from dependence on employment, all have profound effect upon the individual. Many serious problems arise in the adjustment towards the marriage partner in adulthood and all the adult life is bereft of calm and peace. Similarly, incidents like absence of children, death of the offspring, too many children and in India, too many daughters, tend to sleep a man in worry and misery till old age. In brief, as we have said above, occupation, marriage and offspring are essential for an adult. If their condition is satisfactory the person's personality remains balanced but if there is any disturbance it becomes difficult for the person to retain his balance and complacence.

Old Age and Before it

After adult life, in old age and just before it many troubles surround the person, major ones concerning the diminution in his physical energies, economic power and social prestige. In old age people who find themselves dependent on others do not retain their mental balance. People who retire with a pension or a provident fund of some thousands are not in a very satisfactory state unless they have developed some occupation from their adult life. The problem of adjustment arises before the mother who has nothing to do after her children have been married off. If now she does not take to some work, religion or activity the only thing left for her is to criticise the neighbouring daughters-in-law or to create unnecessary troubles and obstacles in the lives of the younger generation.

It must have become obvious, from this rough outline of the stages in development of personality, that it means the adjustment with new needs, conflicts and frustrations. New problems of adjustment keep on arising in the different stages in the physiological and psychological development of personality and from the changing environment. It is often seen that the deficiencies of one stage in the development are fulfilled in the next stage. But besides this, in every stage new problems arise whose solution is essential. The development of personality is a continuous process passing through these stages, devoid of any interval.

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Q. 138. **Write short note on integration of personality.**
(*Karnatak 1965*)

Ans. Personality is the dynamic organisation of the psycho-physical qualities, exhibited in its adjustment with the environment. If the organisation of psycho-physical qualities in personality is not orderly or strong, difficulties will arise in the adjustment to the environment. Such a personality will be called disintegrated.

The integration of personality is necessary in order to effect complete adjustment with the environment. Adjustment will be natural and easy if this integration is strong.

What is Integration of Personality ?

The integration of personality is the integration of all the psycho-physical qualities of personality. There is an absence of conflicts in it. Mind and emotion, desire and determination, and all mental activities are in no way disorganised but all of them work in an organised way. An integrated personality is flexible, strong and organised, as well as balanced. In it there is a compromise of mind and emotions. McDougall has called it the organisation of character and intellect.

The integration of personality is found in everyone to a lesser or greater degree. If this integration is less than is essential, then problems of adjusting to the environment arise. Freud believes in three elements in personality—Id, Ego and Super Ego. Id includes the person's desires, instincts, suppressed desires etc. Super Ego is the representative of social control, the result of the person's socialization. It exercises social control over the person while the Id demands the fulfilment of animal desires. Ego includes the tendencies, which revolt for the existence of life. Thus, often the Super Ego conflicts with the Id or the Ego. The problem of personality is the problem of the mental adjustment of these three.

How is the Personality to be Integrated ?

The weakness of the Ego is the fundamental of personality problems in the person. Either the person's Ego cannot control his desires and instincts or it cannot adjust with the Super Ego. For the integration of personality, it is necessary that the person maintains a balanced and realistic outlook. Some failures and frustrations cross everyone's path, and the person should pursue his life task without being extraordinarily disturbed by happiness or sorrow. Balance is the golden path of life. It is only the balance of emotions, demands, needs and imagination and thinking which can keep the personality integrated.

Importance of Emotionality and Sociality in Integration of Personality

The definition of the integration of personality must have made it clear that it needs socialization essentialy without which the person finds it difficult to adjust to the environment. The social environment is not the total environment of the person and neither is sociality by itself the adequate quality for the adaptation to society, but inspite of this it can be said that sociality is an essential quality in the adaptation to society. Sociability, as the name suggests, is that tendency by which a person mixes with other people of the society and lives with them. An unsocial person is introspective and likes to live alone. He experiences difficulty in meeting other people and having relations with them or behaving towards them. In daily life, the problems which arise in his meeting with other people assume alarming proportions while the social man deals with them with ease. For example, the unsocial person feels lovely when he is alone, bored and restless upon the advent of new people while the social person mixes with them easily and occupies his correct position, The most glaring example of a deficiency of integration is seen in the absence of adjustment with the environment, which also exhibits the effects of deficiency. The reason is that in the absence of integration the personality is unbalanced, there being no proper blending of psycho physical qualities. It is not essential that deficiency of integration will render him incapable of work. Many of the greatest persons suffered from grave deficiencies in the integration of their personalities, but though this did not hinder or restrict their greatness, their personalities were incomplete and one-sided. With people of average capabilities any such deficiency will effect even on their skill in behaviour. It can be generally said that in case of deficiency in integration of personality, the person can neither be skilled in his behaviour nor can be get success in his life's works. He not only makes his own life disturbed but also disturbs the peace in the lives of others. Thus psychologists help people in the integration of their personalities by giving suggestions.

Effects of the deficiency of Integration

Q. 139. **Write a short note on—Personality types.**
(*Bombay 1954*; *Karnatak 1953, 52; Poona 1965*)

What do you understand by Personality ? What are its different kinds ? Explain. (*Bihar 1959*)

Ans. In psychology, people have been classified on the basis of physiological and mental qualities and temperaments.

Physiological types in personality are exemplified in the classification of personalities by E. Kretchmer in his book *Physique and Character*. Kretchmer has classified people into two classes according to their physical structure—

Physiological Types

1. Cycloid : These people are fat, their temperament is objective, sociable and happy.

2. Schizoid : These people are thin and tall. They are temperamentally self centred, emotional, reticent, peaceful and lovers of solitude.

Besides these two types, Kretchmer has mentioned many subclasses on the basis of physical structure, some of the main ones being—

1. *Asthenic* : People of this group are short and thin. They are of a self centred, emotional, dreamy, intellectual, peaceful and solitude loving temperament.

2. *Athletic* : As the name suggests, their built is very good having broad shoulders and slim waists. In temperament they are social, expert in behaviour and active.

3. *Picknic* : These people are fat. Their stomaches protrude and they have round faces. They are naturally happy and sociable.

Types based on Temperament

Classification has been made on the basis of temperaments, besides the physical structure. One example of such classification can be found in W. H. Sheldon's book *The Varieties of Temperament*. Before this, the basis of classification were the anthropological measurements, by which the shape and structure of the body of people were classified.

On the basis of shape and size, Sheldon classified people into these groups :

1. *Endomorphic* : Their stomach is big and the large intestines are intermediately developed.

2. *Mesomorphic* : In this case, the bones and muscles are developed.

3. *Ectomorphic* : Their bones are long and soft while the physical structure is weak.

On the same basis, temperament too is classified into three classes :

Classes of Temperament

1. *Viscerotonic* : In this type activities of eating predominate. They love comfort and food and seek the love of others. They also sleep deeply. They like others to help them when in trouble. People with Endomorphic physical structure fall into this category.

2. *Somatotonic* : The mesomorphic people constitute this group. They are of a brittle, clear and competitive nature, and are generally powerful, daring, authoritative and loud talkers. In trouble they are more active.

3. *Cerebrotonic* : This class includes the ectomorphic type of people. They are controlled, withdrawing and sensing. They are habituated to suppressing their emotions. They love solitude

and instead of seeking assistance in trouble, they like to stay within their own limits. They speak slowly and their sleep is disturbed.

Morgan and Gilliland have mentioned four types of personality on the basis of temperament—

1. *Elated* : They are optimistic, elated and happy.

2. *Depressed* : These people are pessimistic, depressed and emotional.

3. *Irritable* : They are the interfering, irritable and of hot tempered type.

4. *Unstable* : Their mood is unbalanced, unstable and emotional.

The most important classification of personality is that done by Jung. On the basis of sociability he has accepted two types of people—Extroverts and Introverts.

Classes of personality on the basis of sociability

1. *Extroverts* : These people take more interest in others and like to mix with people of similar temperaments. They are realistic and face the problems of life objectively and are always ready to partake of any social activity around them. They take part freely in any social give and take. They are dominated by emotions, whereby they take decisions quickly and act on them with delay. They are skilled in ettiquette. The extrovert group is made up of traders, players, actors, social and political leaders etc.

2. *Introverts* : As the name suggests, the mental tendencies of these people are directed, not outwards to people around them, but rather inwards to themselves. They are thus self centred and lovers of solitude. With them, thinking predominates and they are engaged in thinking and contemplation. They are busy in their thoughts and they try to impress others only by their thoughts. They are idealists who think very much about the future. Usually they take more interest in the physical environment composed of trees, plants, machines etc., than they do in their social environment. Neither do they come to any decision in haste and nor do they act on it promptly. They are not experts in behaviour, but they pay more attention to thought than work. People like scientists, philosophers and poets make up this group.

The following table in intended to make clearer the differences between introverts and extroverts—

Difference between Extroverts and Introverts

Extroverts	Introverts
1. Turned to other people	1. Turned to themselves
2. Emotion predominates	2. Thought predominates
3. Quick determination	3. Determination takes some time
4. Prompt action on decision	4. Delayed action on decision
5. Skilled in behaviour	5. Unskilled in behaviour
6. Pay attention to the present	6. Pay attention to the future
7. Prefer work to thought	7. Prefer thought to work
8. Realists	8. Idealists
9. Like society	9. Like solitude
10. Objective outlook	10. Subjective outlook

3. Ambiverts

The above table about the extroverts and the introverts makes it very obvious that these two types are exactly opposed to each other. But in the real world these two types are rarely found pure. Mostly some peculiarities of both the extrovert and the introvert are found in people. These intermediate people are called "ambiverts." Later still, Jung divided these people into sensing, thinking, feeling and instinctive types.

The above theories of classifying personalities are not accepted in modern psychology. On this subject the following criticisms are important—

Criticism of type Theories

1. Experience and observation make it obvious that most people cannot be fitted into any one type.

2. The 'type' raises doubts on the subject of cause and effect. It would be incorrect to assert that a certain person is solitude loving because he is an introvert.

3. Types cannot be established by measurements. Only the different qualities of personality can be measured. It is not essential that these qualities will remain the same in a person.

Thus, the attempt to classify people into groups is not only without advantage and impractical but also useless.

Influence of school on personality :

School also has an important influence on the personality of the child. In school both the teachers and class-fellows influence the personality of the child. Just as in the family the parents are ideals before the child so are teachers in the school. The child hates the cruel and strict teachers. On the other hand, he respects good and sympathetic teachers. The personality of the teacher and his behaviour towards the child both exercise important influence on the criminal. While discussing the causes of criminal tendencies, Healy and Bronner have emphasized three factors viz., the effort to get rid of the painful circumstances, the tendency to revenge for the mis-behaviour of the father, the efforts to satisfy the frustrating desires. Often the child has the curiosity as to where from the younger brother or sister has come. The answer to this question by the parents has an important effect on his personality. The child tends to identify himself with the teachers and tries to imitate his ways, manners and personality traits. This is only with the influential teachers and not with everyone. Thus teachers mould the personality of the child by their example..

Besides the teacher the classmates and playmates exercise important influence on the personality of the child. These constitute a group in which every child has his own particular status and roles corresponding to it. One can see the leader, the dare devil and the scapegoat child in the group. The leader is the mind of the group. He plans adventures and games. The dare devil executes them while the scapegoat is left to receive the blame and consequent punishment. In different types of groups of children, different traits of leadership are required according to the purpose. Thus sometimes the intelligent child leads while at other times the leader is the dare devil. This particular role in the group determines the future role of the individual in society. This however, is not without exceptions. The development of the personality is a complex process and serious changes are affected in new circumstances which the individual has to face.

Influence of society on personality :

Society is a web of social relationships. These social relationships connect men and women with one another. These interpersonal relations influence and mould the personality of the individual. In the society each individual has some peculiar status and roles corresponding to them. For example, in Hindu community, members of different castes have different social status in society. The role and functions of an individual are determined by his status.

This mechanism controls the behaviour of the individuals. Social control is further exercised by mores, traditions, myths, legends, customs etc. These determine the style of life of the individual. The individual cannot behave in the society as he likes. Society punishes the individual who breaks its norms. The fear of society is often more powerful than even the fear of heaven and hell or punishment by the state. Therefore social norms influence even the ways and attitudes of the individuals. This ultimately influences his personality. The individual adopts the prevalent patterns of social behaviour. That is why one notices so much difference in the behaviour and personality of members of different societies. This however, does not mean that there are no individual differences in the same society. In fact, in every society one can find men and women who scarcely care for the social norms. But in every case, personality is affected by the social environment. Individuality is an outcome of the process of socialization which is impossible without society. There is constant interaction between the individual and society and this interaction moulds the personality of the individual.

Culture and personality :

In the modern age, some anthropological studies of personality in primitive cultures have shown intimate relation between personality and cultures. These studies have shown that man is a far more cultural being than imagined by the psychologists. In this connection, the discoveries by Ralph Linton and Abram Kardiner are notable. These anthropologists have found that in every culture there is a basic personality type which is an outcome of cultural influence on the individual. As these cultural influences change so also change the basic personality types.

About the Alorese of Indonesia, Kardiner has written that in their society the basic personality type is a doubtful, quarrelling, cowardly and parasitic person, whereas in our society such a person will be considered as psychopathic and abnormal. According to Ralph Linton, in certain islands of pacific the same anxiety, rituals, customs and taboos are found about food as about sexual behaviour in our society. These studies prove that every society has a particular culture which profoundly influences the personality of its members.

The members of Zuni tribe use rituals and magic to fulfil their aims and purposes. Their religious practices show complex traits.

Ritualistic activities take a major part of rituals. Ruth Benedict found imitative magic among them. For example, they rolled big stones down the slopes in order to bring rains on the faith that the thunderous sound made by stone will make the clouds thunder and rain. Thus among them religion was mixed with magic. Competition and conflict is comparatively rarer. They are non-violent and do not like change in daily routines. Competitions, conflict and aggression are results of cultural influences.

The Dobu tribe of Malanesia are exactly a contrast to Zuni in temperament and personality. In them one finds abundance of conflict, competition, combat and violence. In Dobus also religion is mixed with magic but this magic is used to bring harm to others or to defend one-self against others. Most of the individuals in this tribe are deceivers. They scarcely care for promises and compromises. In their society, the promises are normally broken. They do not think it to be wrong as it is in other cultures. This difference in the personality traits of Dobu and Zuni individuals is due to the difference in their cultures.

The Kwakiutl tribe, as against Zunis does not believe in religious practices. They are materialists. In their society, wealth determines status and social prestige. Hence every one is seen busy earning money by hook or crook. The tendency of self assertion is fairly clear, self assertion is exhibited in a strange custom known as potlatch In this the rich person destroys his wealth before others to show that he can destroy even more than they have.

All the above mentioned studies of personality types in primitive cultures show how personality traits differ in different cultures. Culture determines methods of child rearing, form of social control, mores, customs, rituals, myths, legends and ways of thinking and living. All these influence the personality. Culture determines the standard of normality in a society. Thus what appears normal personality in a culture may appear abnormal in another. Thus culture determines personality.

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Q. *139.* What do you understand by measurement of personality ? Describe in brief the important methods of personality assessment. (*Banaras 1965*; *Ravishanker 1965*)

Explain briefly the various methods by which personality can be studied. What are the limitations of the questionnaire method ? (*Alld. 1958*; *Rajasthan 1954*)

What is a personality trait ? Describe the various methods of measuring personality ? (*Karnatak 1964*)

Methods of Investigation of personality

Ans. Psychology employs a number of methods by which it measures personality, e. g., situation test, psycho-analytic test and projective method etc. Besides these, the case history method, interview and questionnaire and rating methods have their own importance. Briefly the methods of measuring personality are—

1. Case History Method.
2. Interview Method.
3. Questionnaire Method.
4. Performance Method.
5. Rating Method.
6. Situation Test.
7. Psycho-Analytic Test.
8. Projection Method.

Among the above mentioned methods, the projection method is the most popular. A brief description of the other methods before we make a detailed description of this specific method, would be quite in keeping with the context.

1. Case History Method—In the case history method, as the name obviously indicates, the facts concerning the life of the subject are collected. This case history supplies all the large and small facts related to his environment and heredity. This method can study both normal and abnormal people's personalities but it needs very experienced examiners.

2. Interview Method—The interview method is the most normal of all the methods for the study of personality. It is the method widely used in the selection of people for government services. In this, the subject and the examiner sit facing each other while the former answers questions asked by the latter. Besides the answers which the subject offers, his personality is indicated by his expressions, methods and various other things. This method, like the case hitory method, needs very experienced examiners who ask questions which can prove the correct thing and which enable the subject to express himself without any apprehension. To tell the truth interview method depends as much on the examiner as it does on the subject.

3. **Questionnaire Method**—Questionnaires have been used extensively in the investigation of personality. The name suggests that it is a list of selected questions the answers towhich throw light upon the peculiarities of personality. 'Yes' and 'No' are written in front of these questions the student either strikes out the wrong answer or indicates the correct one. Questionnaires are used to gain knowledge of traits like self-confidence, sociability, introversion or extroversion, tendency to dominate or be dominated etc.

There are some difficulties in the questionnaire methods. It has the following limitations.

Limitations of the Questionnaire Method

1. Often the subjects conceal the true facts and give wrong answers.

2. Sometimes the framing of the questions is such that the examiner takes them to mean one thing and the subject another.

3. Usually the subjects write the answer without an adequate amount of thinking thus leaving possibility of mistakes.

Use of the Questionnaire Method

Inspite of these difficulties, the questionnaire method has proved to be of tremendous value. Alport and Minnesota etc., have formed questionnaires which enable the study of some subtle traits of the personality. It affords a lot of assistance to comparative study because of the various answers of the subjects to the same questions. The conclusions based on these questionnaires are comparative as well as numerical, they also facilitate study because a number of people can be studied simultaneously.

4. **Performance Method**—The performance method was concieved by May and Hartshorne. In this method the subject is given a variety of specific jobs to be performed and the subtle quality of his personality examined. For example in order to test the honesty of children 8 or 10 weights, with little difference between them, were located at some place. The exact weight of each was written under it and the children were told to place them in the

order. The honest children experienced great difficulty while the dishonest read the weights under them and placed them in the order promptly. A very simple method of judging the honesty of the students in the class could be something like this. Some piece should be dictated and the copies collected. The mistakes of each should be secretly noted without any markings on the copy, following which the copies should be returned with the direction that the mistakes are to be noted and marks allocated. The dictation should be written on the black board. The honest will cancel their mistakes while the dishonest will quietly correct them. The honesty of the students can be judged by comparing these with mistakes previously noted.

5. **Rating Method** : Another method of measuring personality is the rating method, in which roughly the work is done in two ways. One, the subject is asked to answer questions related to qualities of personality. The answers which the subject offers or the answers which he selects indicate his personality. Another way of applying the rating method is to place the subject in real situations and then study his behaviour and reactions. For example, in order to judge qualities like skill, efficiency, labour etc., in a person, he may be given a variety of jobs to perform.

As it is the rating method is deceptively simple. But it needs were skilful examiners. Roughly speaking, it presents the following difficulties.

Difficulties in the Rating Method

1. Skill and capability are essential in the examiner.

2. The possibility of prejudice is very great because it is a general truth that no person observes the defects of his near and dear ones.

3. Another grave difficulty of this method is the fact that upon observing a particular good or bad quality we class his personality as good or bad and then see good or bad in the other aspects of his personality.

4. It is very difficult to enumerate or evaluate the quantity of one subtle quality. Mistakes are often made in this.

In spite of the above difficulties both social and industrial psychologies make adequate use of this method. As has been pointed out previously too, it can be made realistic to a large extent if the examiner has all the essential qualities.

6. Situation Test : As usual, the name suggests the nature of the method. In it, the subject is placed in some specific situations and the qualities of his personality are ascertained. Actually, it resembles the performance method, the difference lying in the fact that in this case the person is placed in a situation while in the performance method he is given some work to do. Most psychologists have identified the two together, rendering a separate discussion in dispensable.

7. Psycho-Analytic Method : Two types of tests, in the psycho-analytic method of investigation of personality, are more popularviz., Free Association and Dream Analysis. Both these tests show the peculiarities of the psycho-analytic personality in its unconscious aspect. In dream analysis, the subject describes his dream and without using the mind, meaning thereby the unrestricted state of the mind, associates freely the dream objects and activities. Because of the absence of the mental element the truth of the unconscious mind is expressed by this association, by which the psycho-analyst discovers many peculiarities of his character. The psycho-analytic method is mostly utilized in discovering the personality peculiarities, mental traits, and mental ailments of abnormal people. Its main difficulty lies in the need for a skilled and experienced psycho-analyst. Often the psycho-analyst analysis his own mind in order to remove the possibility of any prejudice.

8. Projective Method : The most famous and popular of all the methods for the investigation of personality is the projective method. Its name suggests the fact that it is founded upon the element of projection. Projection means the observation of some specific thing in some thing or action, according to one's personality and mental state. The Taj Mahal, to take an example, is a marble building many people go to see. Different people find in it different things, in keeping with the peculiarities of their personalities. An emotional person sees it in the form of a formal symbol of emotions while, to the person who gives importance to political and economic questions, it may be a symbol of exploitation. This is an example of a material object but it does make clear the fact that human being does not see an object as it is but also projects the specialities of his own personality upon it. Many peculiarities of the personality are investigated by an analysis of this projection and a comparison of it with the projections effected by others.

Two tests in the projective methods are more famous—

Rorschach ink blot test. Murray's Thematic Appreception Test, known in brief as T. A. T. They are extensively used in the investigation of personality in general. These will, therefore, be described briefly here.

Tests in the Projective Method

i. Rorschach's ink blot test : This test was conceived by the Swiss scientist Hermann Rorschach. He used 10 original ink blot cards which are still in use today. There is no picture made in these blots. Five of these are black, two black and red and the other three multicoloured. To investigate personality, they are exhibited before the subject one after the other and he is asked to describe everything he sees in the blot. These are shown for a determined interval of time. These cards are shown to the subject for a second time and he is asked to point out the location, of whatever he had seen, on the blot. In order to establish the meaning of the subjects for a reaction to the blots, the psychologist analyses the location, deciding factors and the object. The analysis of the location serves to indicate whether the subject reacted to some particular spot on the blot or towards the blot as a whole. As a general rule, it is believed that the person who reacts more completely is more principled. The analysis of the deciding factor is an attempt to find out whether the reaction of the subject is towards the shape of the blot or the colour in the blot or to the motion of the blot. As to the object, the analysis shows whether the subject sees in it the figure of a man or of an animal or of anything else.

Besides the above analysis, facts like the time taken by the subject to react to the whole blot, the number of activities which he did and whether he did them normally or not, are also noted and observed. All these things tend to help in the analysis and investigation of the conceived and unconscious peculiarities of the subject.

The biggest difficulty in the ink blot test is that the description of the subject's reactions becomes quite subjective. which conceals to some extent the correct personality peculiarities of the subject. But maximum efforts are being made to make this test scientific.

ii. Murray's Thematic Apperception Test: The founder of this test, Murray investigated the peculiarities of personality with the help of some picture. These pictures are still considered to be conclusive. Observing these pictures, the subject by projection, identifies himself with the characters in the picture. The pictures are presented one by one to the subject who has to compose a story on them in some fixed time period, say five minutes. Unknowingly, the subject expresses many of the peculiarities of his personality in this story by projection. He does not get the time to think. Therefore the story expresses his natural desires, emotions, sentiments etc. On the basis of these stories, the psychologist analysis the personality of the subject and uncovers its specialities.

As in the Rorschach's ink blot test, there is a lot of complexity in Murray's thematic apperception test, and the personality investigation done by it is not numerical but qualitative with grave possibility of mistakes. But, still, there is no doubt that an experienced and skillful psychologist can use this method to uncover the specialities of the personality of the subject. This test helps in the discovery of many mental distortions, enabling subsequently their curing.

* * *

Q. 140. **Give a complete and clear idea of personality. How would you distinguish between normal and abnormal personalities.**

(*Agra 1960*)

Ans. Personality is expressed in the method one employs in the adjustment with the environment. Every person lives in a specific environment, but this environment continuously changes. The person has to adjust himself to this dynamic environment, his adjustment depending upon his capabilities, qualities, tendencies, interests and abilities If the person adjusts himself to the environment and conducts his behaviour according to the elementary social laws, his personality is supposed to be normal. A person is called abnormal when he either does not fit into the environment or does not behave in accordance with the current laws governing behaviour.

Actually, the criteria of normality and abnormality differ from society to society and group to group. But the normality or abnormality is determined in a society on its own criterion. Thus the personality of a Naga may appear abnormal in the Hindu society. It is obvious here that from the scientific view point this changing criterion is totally inadequate, and due to this psychologists have attempted to evolve a universal criterion of normality and abnormality, to distinguish between the two. It can generally be said that a person incapable of effecting adjustment in a civilized society will be called abnormal. Psychology tries to make a person normal by removing his problems of adjustment with the environment.

Q. 141. Write a short note on Conflict.

(*Banaras 1957; Punjab 1960*)

What is conflict ?

Ans. Most of man's activities result from motives. Often, more than one motives arise in the person simultaneously, which originate a doubt in his mind and cause tension. He finds it difficult to decide on the mode of action, this state being psychologically designated 'conflict.'

Causes of Conflict

There are two main causes of conflicts—*1. Environmental Obstructions*—Many hinderances in the environment create conflicts inside the person. *2. Personal Deficiencies*—The deficiencies of the character, nature and personality of the person himself create conflicts between the motives. In reality, the existence of conflict in life is indispensable, without which development is not possible, but when these conflicts assume abnormal proportions they become harmful.

The major types of conflicts are as follows :

1. Approach—Approach Conflicts—In this type, both the motives engaged in the conflict are such that the individual accepts them both and would like to fulfill both, the conflict arising from the fact that both cannot be fulfilled at the same time. A person, for example, wants both a pantaloon and a blancket but has money enough only for one.

2. *Avoidance—Avoidance Conflicts*—In this case both the motives are of such a nature that the individual would avoid them if he could. For example, neither does a person want to work nor would he appreciate being called a malingerer.

3. *Approach—Avoidance Conflict*—In this type the motives which conflict with each other are such that one of them the individual wants to fulfil while the other he wants to avoid. For example a player would like to participate in a game but would also like to avoid injury.

4. *Double Approach—Avoidance Conflict*—In this class of conflicts although the person has come to a decision in one direction he still feels an inclination towards the other allurements although he cannot alter his decision.

Excessive conflicts indicate a weakness of determination. Strong will power is needed to avoid or to be rid of it.

Q. 142. Write a short note on Multiple Personality.

(*Punjab 1959; Delhi 1959*)

An example of Multiple Personality

Ans. Doris was a girl of quiet and serious nature. She was the industrious and obeying type. But sometimes she became extremely careless and naughty, at such times hating her serious personality and talking about it as if it were some other girl. On the other hand, in her serious condition she would forget her naughty personality. In this way Doris had two personalities. This is called multiple personality in psychological language. When she was three years of age her father had thrown her on the ground in an intoxicated condition and since then, her dual personality had developed.

Signs of Multiple Personality

The above example illustrates the signs of multiple personality the first being the fact that in multiple personality, the personality is subdivided into two or more contradictory personalities. In this, one personality is a happy one while the other is irritable, one is peaceful but the other is restless. Often the present personality does not remember the other personality and even if it does remember it, it thinks of this as another persona. The personality which remains for a long time is called the primary state and the personality which persists for a comparatively shorter time is called the secondary state. Commonly things related to the primary state are remembered in the secondary state but things of the secondary state are not recalled in the primary.

Example of Beauchamp

A famous example of multiple personality is a young woman named Beauchamp, upon whom so many troubles converged that she developed an extremely religious, ethical and sacrificing personality. But at the same time along with this she sometimes showed another personality in which she became very naughty. In order to cure her of this dual personality, Beauchamp under went many mental cures, but in this period a third personality developed in her. This personality was selfish and aggressive. She thus had three personalities, the first being the primary and the other two the secondary ones. Naturally, in her first condition she had no memory of the other two states and in the other two conditions she remembered the other conditions in the form of strange personalities.

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Q. 143. **Write short note on Disintegration of personality.**

(*Banaras 1965*)

In Woodworth's opinion "An integrated personality is one in which the several traits, interests and desires are combined in an effective harmonious unity." The main cause of disintegration is the absence of this very unity. The continual conflict between the different interests or desires of a person and the continuous absence of any harmony are the causes of disintegration. The absence of harmony may be attributable to a number of causes, like personality abnormalities, prolonged conflicts, multiple personality, hysteria or other mental disease, phobias, weakness of will, the unnatural and abnormal expression of lusts and instincts, insanity, excessive day dreaming and many deficiencies in nature like deficient sociability, irritable nature, energetic or quarreling nature etc. The formation of mutually contradictory habits leads to the dissolution of the organisation in personality. The persistent conflict between the mind and the desires does not allow the personality to remain organised. Idiots, imbeciles and the like cannot create any harmony between their different interests, desires and tendencies and consequently their personality is disintegrated. Sometimes personality may be disintegrated by being inflicted for a long time with some difficult disease or some incurable physical ailment. Even a difficult pathetic and painful life may lead to disintegration and a similar result may come about if desires are either excessively repressed or left dissatisfied to a great extent. According to Freud the most comprehensive cause of disintegration of personality is the excessive repression of the sex impulse. Another possible cause of personality disintegration is the extreme difficulty of the instinct of self assertion. In brief the main causes of the disintegration of personality are—excessive repression of natural tendencies, unhealthy environment, defects of nature or character, mental ailments and abnormalities, strong deficiencies of the will power and intellect.

Q. 144. Write a short note on Feeblemindedness.

(*Agra 1956*)

Ans. Feeblemindedness, as the name suggests quite naturally, is the defect of having less then the average intellect. In Woodworth's words "Feebleminded persons are so deficient in intelligence that they cannot manage their own lives without supervision." It is obvious that feebleminded people are only problems for their families and the society.

The people with feeble minds are divided into three classes according to the quantity of brain—

Types of Feeblemindedness

1. Idiot : Idiots cannot protect themselves from even the common dangers of life. They have the least amount of brain. They cannot move out of the path of an oncoming train, and are fully capable of putting their hands in fire or of diving into deep water without any inhibition. They can neither keep themselves clean nor dress themselves. Extreme idiots cannot even feed themselves and are incapable of satisfying other physiological needs. They cannot learn more language than some few words.

2. Imbecile : They have somewhat more brains than the idiots and they learn to defend themselves from the ordinary dangers of life. They can converse slightly but they cannot write. People with extremely weak brains cannot perform any activity. Some of the higher people in this group can learn some productive capacity with some supervision, while the most superior people of this group can perform the necessary activities of life but they too need supervision for any productive activity.

3. *Morons* : They constitute by far the greatest number of people in the feebleminded group as a whole and they also have the most brains in this group. They can be taught to perform their daily activities without anyone supervising them. They also learn the elementary types of productive work. The better people of this group learn to look after animals, exercise children, do the work of a carpenter and lathe worker and even to operate sewing machines. But in doing this work in the form of employment they need the care of an assistant person who can understand their limitations, without which care they waste their earnings and their time. If there is no care, female, young, morons can be easily led to corrupt practices and the male morons to theft. It can generally be said that morons cannot successfully perform any new or complex activity.

Cure of Feeblemindedness

As has been mentioned before, the feebleminded people become a burden for their families and the society. And in the present society, when life is so fast, these feebleminded people can create serious trouble. And consequently, specific attention is being paid to their education and training in civilized societies, and attempts are being made to adopt methods which may enable these people to live normally, without creating problems for others. In many countries legal definitions have been given to feeblemindedness and laws have been framed which determine the behaviour towards them. From the legal point of view, that child is feebleminded who is extremely backward in school studies when compared to an average child. Special education for these children in schools has been greatly emphasized. Similarly, a feebleminded person is one who is incapable of earning his own livelihood and living properly in society. The responsibility of the security, control and upbringing of such people rests with the society, otherwise they become criminals, harmful to the society. As a general rule, the feebleminded can be trained to earn enough to enable them to live. Commonly, in every society, some one to two percent people can be categorised as feeblminded. Psychology has not yet succeeded in doing anything for the development of the minds of these people. Actually speaking the solution to the problem of the idiots and imbeciles will be difficult to obtain because the brain is injured due to some cause or the other. But the morons can be rendered harmless as well as productive and useful. And for this it is essential to understand their limitations and to create an environment suitable to them.

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Q. 145 **What is meant by disintegration of personality ? How can it be detected and cured ?** (*Agra 1959*)

Ans. For the meaning of disintegration of personality and its detection see the answer to the question 138.

Cures of Personality Disintegration

To effect cure for personality disintegration, the first thing a psychologist does is to collect the history of the patient and find out the cure of personality disintegration, and thus each case of personality disintegration is to be cured by a specific method. It is obvious that there can be no general method which will cure every type of personality disintegration, but inspite of this some methods can be mentioned which will cure personality disintegration in general. These are—

1. Suggestion
2. Hypnosis
3. Psycho-Analysis
4. Faith Cure

1. Suggestion—Suggestion is an important method in psychotherapy, one essential of which is that the patient should have complete faith in the psychologist and his approach. The need for a psychologist who can create respect and faith in the patient is obvious, the possibility of success of the suggestions depending on the extent of the respect and faith. Many mental and neurological ailments are relieved on the basis of just this faith. Sometimes auto-suggestion also helps the cure, in which the patient gives suggestions to himself. Sometimes even counter suggestions prove efficacious, being specially effective in cases in which direct suggestions have proved ineffective. In common and simple matters, it becomes necessary for the psychologist to explain the reasons for his cure in order to create faith in the patient for the cure. This is called rational suggestion. In brief, the first thing the psychologist does is to create faith in the patient for him and then proceeds to cure the disease by suggestion after profound mutual relations have been established.

2. **Hypnosis**—In a hypnotised state the suggestions are comparatively more effective because he accepts the suggestions of the psychologist without any objection or thinking, being as he is in an inactive or passive condition having completely surrendered himself to the psychologist, Accordingly, when the patient is in a hypnotised state, directions relating to the elimination of mental diseases, bad habits and physical defects can be given. These suggestions have succeeded in removing many very dangerous mental diseases. It still retains its importance in curing many defects of personality.

3. **Psycho-Analysis**—Psycho-anlysis is the best among the different methods employed in the curing of personality disintegration and many defects in the personality as well as mental diseases. In psycho analysis the method of free association discovers the causes of the ailment. The individual lies or sits relaxed and expresses his thoughts and feelings in their fundamental form. Consequently, this reveals the fundamental causes of his difficulties which are generally the result of repressed tendencies. After these tendencies have come to light harmless modes of their expression are explained to the patient or instead, they are sublimated, organised and substituted.

4. **Faith Cure** : The Christian science of healing is based on faith. Even where there were no scientific procedures astonishing results were observed. The importance of faith in cure has been emphasized in the Indian secred books. In this method the patient believes that he is getting better day by day and his troubles are being reduced.

In the end, it is essential for the cure of personality disintegration that the person learns to face the situations, that he has self-confidence, that his will power be strengthened, that he understands situation and that he may learn to sublimate or substitute his tendencies instead of repressing them. And for all this it is necessary that the person should lead as normal a life as possible. Sometimes a change in the environment also proves advantageous. Sometimes physical cure also becomes necessary.

Q. 146. **Write short notes on—(a) Agnosia. (b) Empathy. (c) Sublimation.** *(Agra 1955)*

Write short note on—Empathy. *(Bombay 1950)*

(a) Agnosia

See the question and answer relating to localisation in the brain in chapter 5.

(b) Empathy

According to Woodworth, "Empathy means 'feeling into' a person on thing, rather than feeling with him or it." In this the person forms a relation with some other person or thing and starts experiencing his emotions or conditions with the help of imagination. Empathy is seen in external behaviour. The spectators viewing a match lean in the direction the ball has taken and they are seen exerting themselves by bending forward when one of the players scores a goal. This is empathy. It is obvious that the spectator is not sympathising with the player but is taking part in the game with the help of his imagination. In the same way, while reading or seeing a movie, the reader or the spectator takes part, by means of empathy in the different incidents and recieves varied experiences. On seeing a bird flying one thinks that if I had wings I would have flown off through the air. This is empathy.

(c) Sublimation

Psychologists have now definitely established that the repression of natural instincts creates the dangers of destruction of personality equilibrium and many mental diseases and abnormalities. On the other hand, all desires and tendencies cannot be expressed. For example, the society does not allow the fulfilment of many desires motivated by the sex impulse and there is danger for mental health in their repression. Therefore, psychologists have suggested the sublimation of such tendencies by which these tendencies are afforded the opportunity of harmless and healthy expression. For example, sexual tendencies can be sublimated by taking an interest in the different arts. The sexual tendency is satisfied by taking part in the fine arts and by being engaged in literature. In the same way, sport sublimates the aggressive tendencies. In the human civilization the animal tendencies of man are sublimated. On the one hand, sublimation directs human energies along profitable channels and on the other saves them from useless destruction. Personality integration gives a lot of importance to sublimation.

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